SHARP SERVICE MANUAL

ATSM281026RCS

SHARP
GF-9696
26W
METAL
3WAY

APLD
Auto Program Locate Device

MODEL
GF-9696H

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

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SHARP CORPORATION OSAKA, JAPAN

SPECIFICATIONS

GENERAL

Type:	Portable stereophonic cassette tape recorder with built-in LW/MW/SW/FM 4-band radio
Power source:	AC 110/220/240V, 50/60Hz DC 15V (Ten UM/SUM-1, R20, batteries or external DC supply)
Power consumption:	58W
Speaker:	18cm (8 ohms) Woofer x 2, 5cm (8 ohms) Squawker x 2, Horn type tweeter x 2
Output power:	MPO (DIN 45 324, 10% distortion), 26W (13W + 13W), operation on AC supply MPO (MAX), 40W (20W + 20W), operation on AC supply RMS (DIN 45 324), 22W (11W + 11W), operation on DC supply
Semiconductors:	12-IC (Integrated Circuit), 45-Transistor, 34-Diode, 24-LED and 1-SCR
Dimensions:	Width; 556mm (21-7/8") Depth; 143mm (5-5/8") Height; 310mm (12-3/16")
Weight:	8.9Kg (19.6 lbs) (without batteries)
Input terminals:	1. External microphone; 600 ohms (J101, J102) 2. Mixing mic.; 600 ohms (J401) 3. Remote control (J103) 4. External DC power (J901) 5. AC input power (SO901) 6. Record/playback socket; 2.5mV/10K ohms (SO101) 7. External FM aerial (TB1) 8. Phono (J105, J106)
Output terminals:	1. External speakers; 4∿8 ohms (SO103, SO104) 2. Headphones; 8∿25 ohms (J603) 3. Record/playback socket; 0.7V/50K ohms (SO101)

TAPE RECORDER SECTION

Type:	4-track stereo cassette tape recorder
Tape:	Philips-type compact cassette tape
Tape speed:	4.8cm/sec.
Recording system:	AC bias
Erasing system:	AC erasing
Fast forward or rewind time:	120 sec. (with C-60 tape)
Frequency response:	30∿17,000Hz (Metal) 30∿15,000Hz (CrO_2) 30∿14,000Hz (normal)
Wow and flutter:	0.17% (DIN 45 511) 0.06% (WRMS)
S/N ratio:	56dB (metal tape, SNRS; ON)

RADIO SECTION

Frequency range:	LW 150∿285kHz MW 520∿1620kHz SW 5.95∿18MHz FM 87.6∿108MHz
Intermediate frequency:	LW/MW/SW 455kHz FM 10.7MHz
Circuit system:	4-band superheterodyne system
Antenna:	LW/MW ferrite core bar antenna SW/FM telescopic rod aerial FM external aerial

Specifications are subject to change for improvement without prior notice.

NAMES OF PARTS

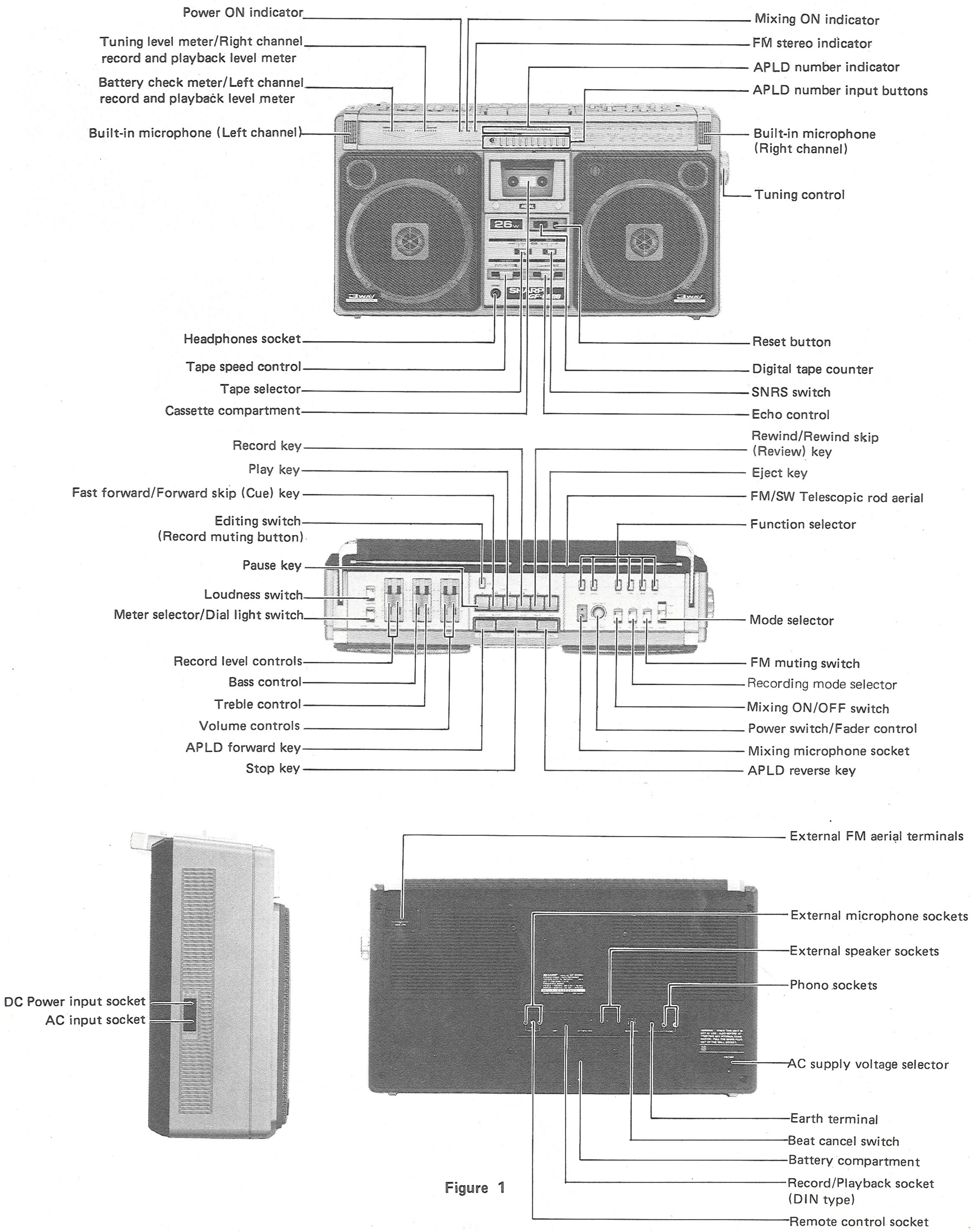

Power ON indicator
Tuning level meter/Right channel record and playback level meter
Battery check meter/Left channel record and playback level meter
Built-in microphone (Left channel)
Mixing ON indicator
FM stereo indicator
APLD number indicator
APLD number input buttons
Built-in microphone (Right channel)
Tuning control
Headphones socket
Tape speed control
Tape selector
Cassette compartment
Reset button
Digital tape counter
SNRS switch
Echo control
Record key
Play key
Fast forward/Forward skip (Cue) key
Editing switch (Record muting button)
Pause key
Loudness switch
Meter selector/Dial light switch
Record level controls
Bass control
Treble control
Volume controls
APLD forward key
Stop key
Rewind/Rewind skip (Review) key
Eject key
FM/SW Telescopic rod aerial
Function selector
Mode selector
FM muting switch
Recording mode selector
Mixing ON/OFF switch
Power switch/Fader control
Mixing microphone socket
APLD reverse key
DC Power input socket
AC input socket
External FM aerial terminals
External microphone sockets
External speaker sockets
Phono sockets
AC supply voltage selector
Earth terminal
Beat cancel switch
Battery compartment
Record/Playback socket (DIN type)
Remote control socket

Figure 1

DISASSEMBLY

Notes:

When servicing the GF-9696H, take into account the following for your safety, as well as keeping its own performance as best it could be.

1. When disassembling the unit, be sure to withdraw the power supply cord from a wall outlet beforehand.
2. A number of nylon holders have been used to facilitate wire arrangements in the unit. If some such holders are removed for servicing the unit, be sure, thereafter, to put them back where they were.
3. Circuitry connection of the unit is made effective by means of a number of connectors. In the servicing, take care not to be wrong in their connection.
4. Keep C-MOS LSIs (in the unit) from static electricity, etc. caused in the servicing.

A FRONT CABINET REMOVAL
(Refer to Figure 2, 3 and 4)

1. Remove eight (8) screws retaining the front cabinet.
2. Remove Five (5) knobs.
3. Open the cassette holder by pushing the eject key.
4. Gently pull out the front cabinet and disconnect four (4) tips (Speaker) and two (2) sockets (SO601 and SO751) connected to the P.W. Board.

B OPERATION PANEL REMOVAL (Refer to Figure 3)

1. Remove the front cabinet as described in front cabinet removal.
2. Remove seven (7) knobs.
3. Gently lift up the operation panel from the back cabinet.

C DIAL SCALE PLATE REMOVAL (Refer to Figure 4)

1. Remove the operation panel as described in operation panel removal.
2. Remove four (4) screws retaining the dial scale plate.
3. Gently pull out the dial scale plate from the chassis.

D INDICATOR P.W. BOARD AND METER P.W. BOARD REMOVAL (Refer to Figure 5)

1. Remove the dial scale plate as described in dial scale plate removal.
2. Gently pull out the P.W. Board.
   (However, the indicator P.W. Board and the meter P.W. Board are connected to the main P.W. Board by leads.)

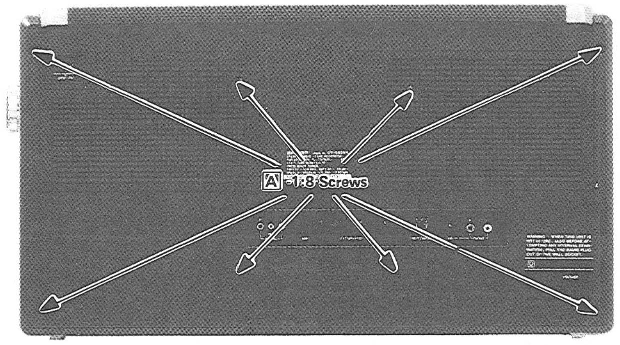


Figure 2

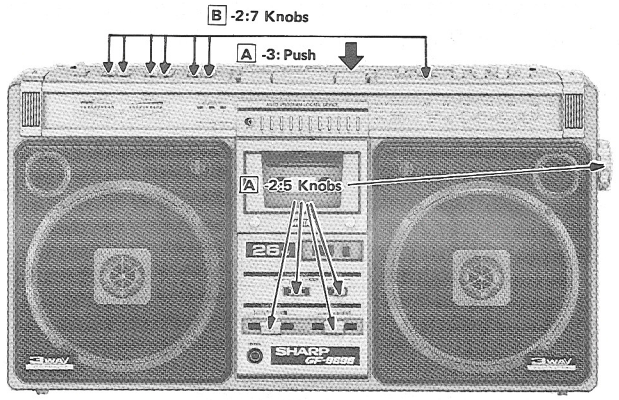

B -2:7 Knobs
A -3: Push
A -2:5 Knobs

Figure 3

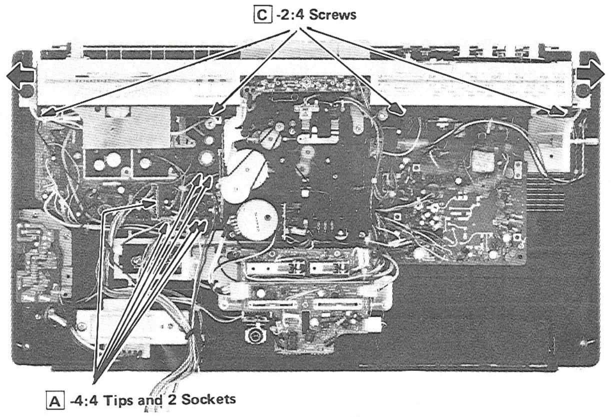

C -2:4 Screws
A -4:4 Tips and 2 Sockets

Figure 4

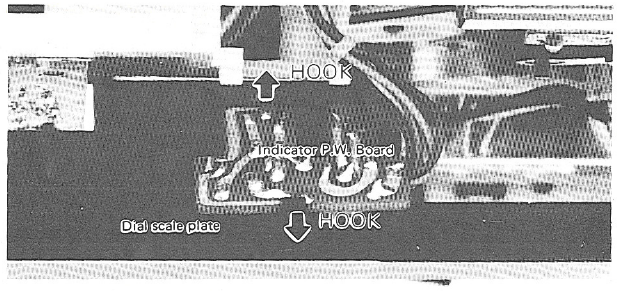

HOOK
Indicator P.W. Board
Dial scale plate
HOOK

Figure 5

E MECHANISM BLOCK REMOVAL (Refer to Figure 6)

1. Remove the dial scale plate as described in dial scale plate removal.
2. Disconnect the tip (Muting) and three (3) sockets (SO1, SO502 and SO401).
3. Remove four (4) screws retaining the mechanism block.
4. Gently pull out the mechanism block from the main P.W. Board holder.

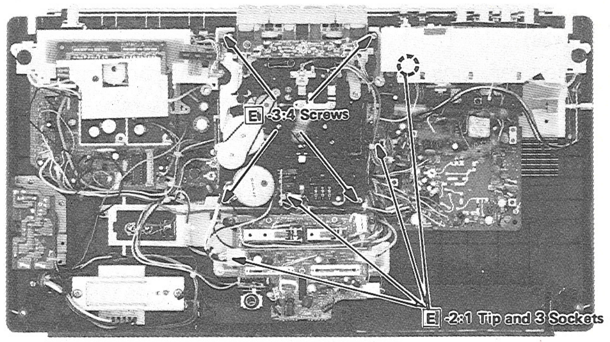

E -3:4 Screws
E -2:1 Tip and 3 Sockets

Figure 6

F FRONT SWITCH P.W. BOARD REMOVAL (Refer to Figure 7)

1. Remove the front cabinet as described in front cabinet removal.
2. Remove two (2) screws retaining the front switch P.W. Board.
   (However, the front switch P.W. Board is connected to the main P.W. Board by leads.)

G ECHO P.W. BOARD REMOVAL (Refer to Figure 7)

1. Remove the front cabinet as described in front cabinet removal.
2. Disconnect four (4) sockets (SO401, SO402, SO403 and SO752).
3. Remove two (2) screws retaining the echo P.W. Board and the echo unit angle.
   * ECHO UNIT REMOVAL
     1. Remove the front switch P.W. Board as described in front switch P.W. Board removal.
     2. Remove one (1) screw retaining the echo unit angle.

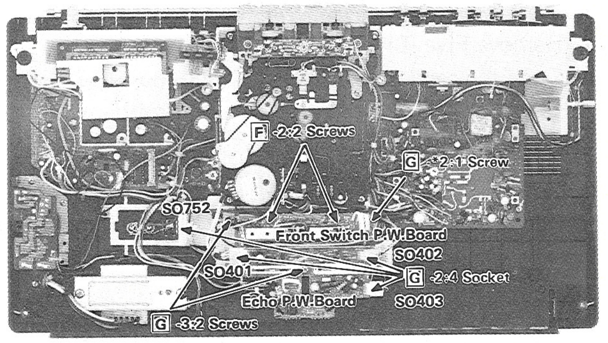

F -2:2 Screws
G -*2:1 Screw
SO752
Front Switch P.W.Board
SO402
SO401
G -2:4 Socket
Echo P.W.Board
SO403
G -3:2 Screws

Figure 7

H POWER P.W. BOARD REMOVAL (Refer to Figure 8)

1. Remove the front cabinet as described in front cabinet removal.
2. Remove two (2) screws retaining the AC input socket angle.

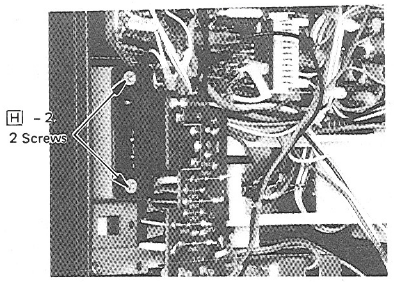


Figure 8

I TOP SWITCH P.W. BOARD REMOVAL (Refer to Figure 9)

1. Remove the operation panel as described in operation panel removal.
2. Remove four (4) screws retaining the top switch P.W. Board.
   (However, the top switch P.W. Board is connected to the main P.W. Board by leads.)

J VOLUME P.W. BOARD REMOVAL (Refer to Figure 9)

1. Remove the operation panel as described in operation panel removal.
2. Remove four (4) screws retaining the volume P.W. Board.
   (However, the volume P.W. Board is connected to the main P.W. Board by leads.)

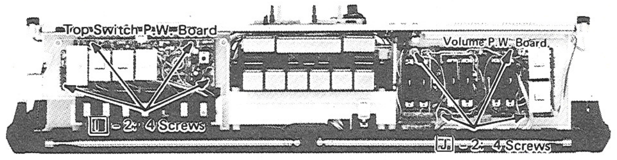

Top Switch P.W. Board
Volume P.W. Board
I - 2: 4 Screws
J - 2: 4 Screws

Figure 9

K MAIN P.W. BOARD AND AUDIO POWER P.W. BOARD REMOVAL (Refer to Figure 10 and 11)

1. Disassemble according to disassembly chart A ~ G.
2. Disconnect six (6) tips (power supply and FM/SW antenna).
3. Remove eight (8) screws and gently lift up the P.W. Board blocks from the back cabinet.
   * When the operation panel, the dial scale, the mechanism block and the echo P.W. Board are fixed, disassemble as follows.
     1. Remove the front cabinet as described in front cabinet removal.
     2. Disassemble according to disassembly chart K-2 and K-3.
     3. Remove two (2) screws and lift up the P.W. Board blocks from the back cabinet.

HOW TO REMOVE OR INSTALL THE SHIELD PLATE OF THE L.E.D. METER P.W. BOARD (Refer to Figure 12)

To remove the shield plate from the LED Meter P.W. Board;

1. Take off the hook Ⓐ from the LED Meter P.W. Board.
2. Take off the hanged hooks Ⓑ and Ⓒ from the LED Meter P.W. Board.

The setting may be followed to the opposite way.

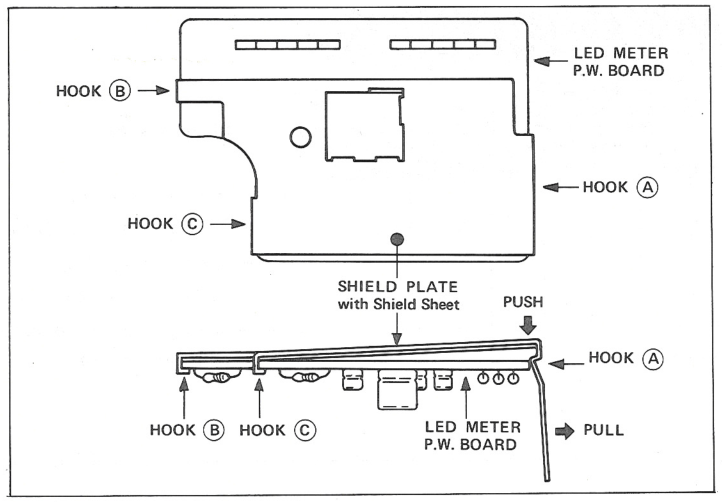

LED METER P.W. BOARD
HOOK Ⓑ
HOOK Ⓐ
HOOK Ⓒ
SHIELD PLATE with Shield Sheet
PUSH
HOOK Ⓐ
HOOK Ⓑ
HOOK Ⓒ
LED METER P.W. BOARD
PULL

Figure 12

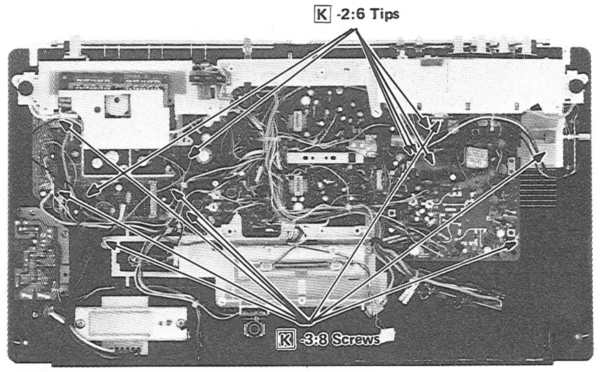

K -2:6 Tips
K -3:8 Screws

Figure 10

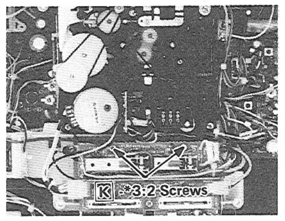


Figure 11

SPEAKER NET DETACHMENT AND ATTACHMENT

- Force the speaker net out by supporting its rubber frame with the fingers. To reset it, fit the four corners of the rubber frame into the unit and straighten them carefully. (Refer to Figure 13)

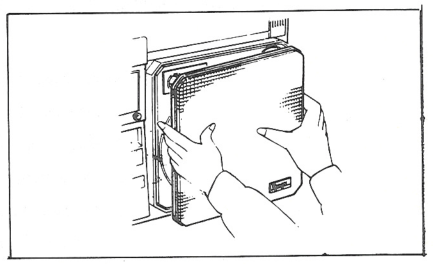
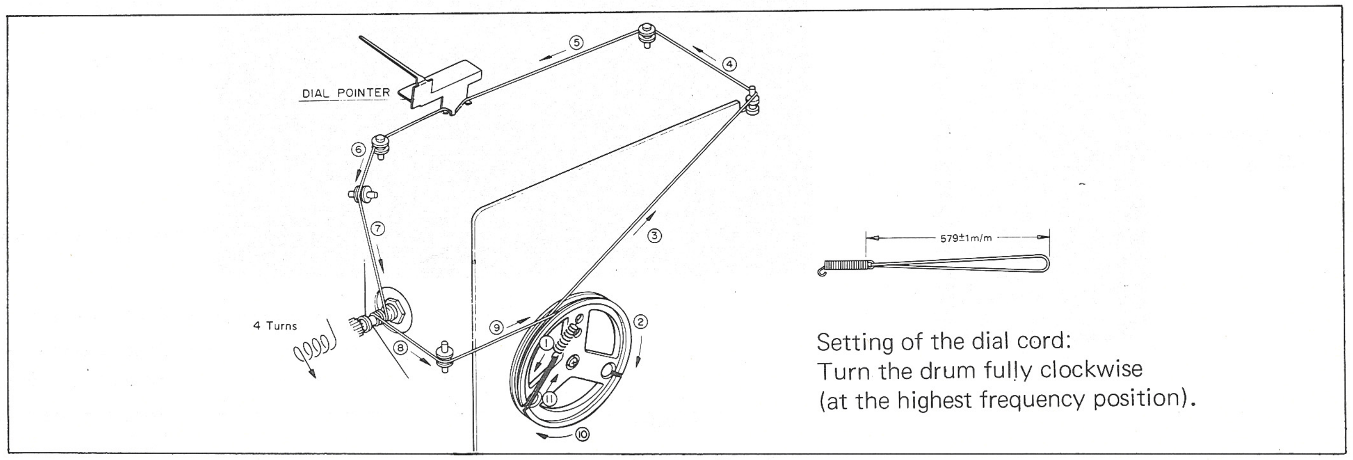


Figure 13

DIAL CORD STRINGING


DIAL POINTER
⑤
④
⑥
⑦
③
4 Turns
⑨
②
①
⑧
⑪
⑩
579±1m/m

Setting of the dial cord:
Turn the drum fully clockwise
(at the highest frequency position).

Figure 14

BEHAVIORS OF APLD (AUTO PROGRAM LOCATE DEVICE)

■ **APLD**

The APLD makes it possible for the operator to easily find the beginning of each program on most cassette tapes and to play it back automatically.

It consists of a preset/power circuit, program spaces detector/pulse generator circuit, program spaces count circuit, plunger drive circuit, programs indicator circuit and muting circuit.

■ **PRESET/POWER CIRCUIT** (Refer to Figure 15 and 18)

1. **In the case the APLD function is to be preset before pushing the forward or rewind APLD key:**

   The APLD function can be preset even while the radio and/or record player is in operation although it is allowed when the tape is being played, of course. Suppose that one of the APLD numeral buttons (for instance, the button [3]) is now pushed. The output signal of the constant voltage circuit (Q751) passes through pin ④ of the resistor array (R779), APLD switch (SW751-[3]) and diode (D755), then is applied to the gate of the thyristor (SCR751) for it to get turned on. The base potential of the power switching transistor (Q752) decreases, therefore, so that this transistor is turned on. This voltage is then applied to pin ① of the APLD control integrated circuit (IC751) as well as to the anode of the APLD indicator, while it is being held to constant 6V by zener diode (D752). At the same, since another voltage is applied to pin ④ of that integrated circuit (IC751), the oscillator circuit inside it gets conducted at the frequency (approx. 40 kHz) the value of which is decided by the capacitor (C754) and resistor (R761): the potential of pin ⑳ of the IC751 goes down to "Low" level, therefore.

   Thus the 3rd program is preset and the APLD program indicator (D763) lights up simultaneously.

2. **In the case the forward or rewind APLD key is pushed (i.e. without a push of the APLD numeral button):**

   When the set is placed in the forward or rewind APLD mode, power voltage passes through the forward or rewind APLD switch (SW503 or SW502) and resistors (R714 and R755), then is applied to the base of the power switching transistor (Q753) for it to get turned on. The transistor (Q752) is therefore turned on and this delivers a constant voltage (6V) to pin ① of the integrated circuit (IC751) and also to the anodes of the APLD indicator and APLD program indicator. At this time, the 1st program "1" is automatically preset even if the APLD numeral button [1] is not pushed and the corresponding APLD program indicator (D761) lights up, too: this is because since the integrated circuit (IC751) has a built-in "1" reset circuit, it is reset to "1" position when given such power supply voltage.

3. **Altering a preset program to another:**

   Suppose that the program "3" has been now preset and it is to be altered to the program "7". This presetting of program "3" means that out of all pins ⑫ thru ㉒ of the integrated circuit (IC751), the potential of pin ⑳ representing program "3" is kept at "Low" level while others ⑫ ~ ⑲, ㉑ and ㉒, all at "High" level.

   When the APLD numeral button [7] is pushed, voltage is fed to pin ④ of the IC751 via the APLD switch (SW751 – [7]), so that the IC751 starts oscillating the way as we said in the step 1. Then pins ⑳, ⑲, ⑱, ⑰ and ⑯ go down to "Low" level in this order and the moment pin ⑯ gets "Low", the potential of pin ④ is zeroed to stop oscillation of the IC751.

   The program "7" is thus preset and the APLD program indicator (D767) lights up simultaneously.

   Note:

   If any one of the APLD numeral buttons [2] thru [7] other than [1] is pushed first, the APLD program indicator (D761) above the APLD numeral button [1] will light up for a very instant since the "1" reset circuit operates, as described in the step 2, when the power switch is turned on. Only after that, the APLD program indicator (D763) above the APLD numeral button [3], for instance, which has been preset, will light up.

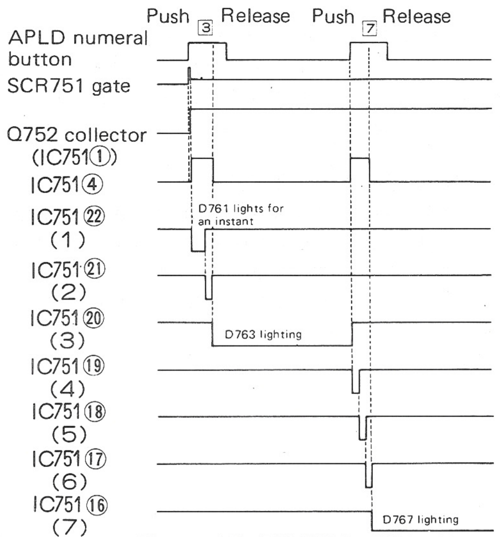


Figure 15 TIMING CHART A

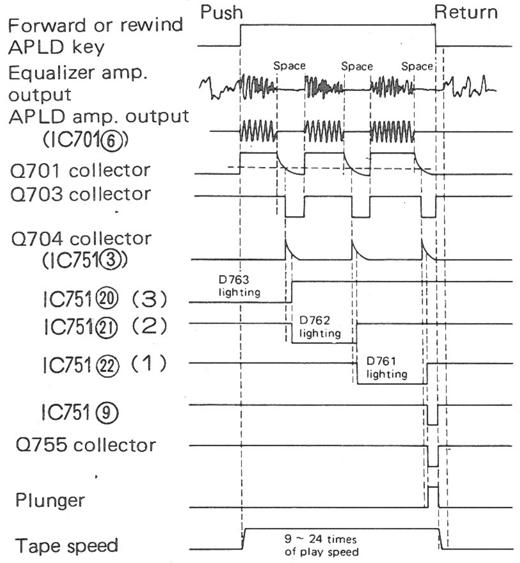


Figure 16 TIMING CHART B

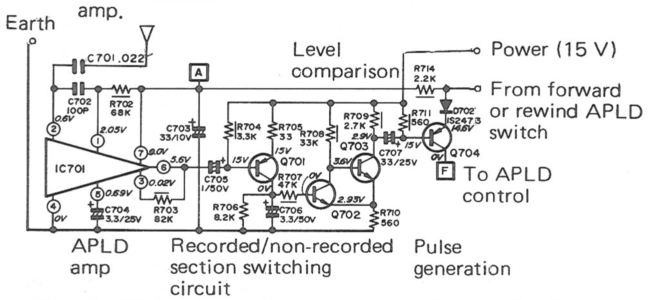


Figure 17 PROGRAM SPACES DETECTION/PULSE GENERATION CIRCUIT

■ **PROGRAM SPACES DETECTOR/PULSE GENERATOR CIRCUIT** (Refer to Figure 16 and 17)

1. When the forward or rewind APLD button is pushed, the APLD switch (SW503 or SW502) gets turned on to apply power to the APLD amplifier (IC701).
2. About how the circuit behaves with program recorded: The recorded signal is played by the record/playback head, and it is amplified by the equalizer amplifier (Q101 to Q104) and APLD amplifier (IC701). This output turns on the switching transistor (Q701) and also the level comparator transistor (Q702). The transistor (Q703) is therefore turned off so that a bias current no longer flows into the transistor (Q704) for it to stop pulse generation.
3. About how the circuit behaves with program not recorded: When the tape reaches non-program-recorded part, the output of APLD amplifier (IC701) is zeroed to turn off the transistor (Q701). Then the transistor (Q702) is turned off by time constant assured by the capacitor (C706) and resistor (R706) while the transistor (Q703), on.

   As a result, the capacitor (C707) causes a bias current to run in the transistor (Q704), and pulse is generated at the collector of this transistor. This pulse (programs' space pulse) is then applied to the spaces count circuit located inside the integrated circuit (IC751).

■ **SPACES COUNT CIRCUIT** (Refer to Figure 16 and 17)

1. Programs' space pulses which have been produced by the pulse generator circuit are then fed to pin ③ of the integrated circuit (IC751).

   The oscillator circuit inside the IC751, then, oscillates, with every generation of the said pulses, at the frequency by the value of which is decided by capacitor (C754) and resistor (R761). The number of the preset programs is reduced one by one in this way.

   When the 3rd program, for instance, has been preset, the above operation causes pins ⑳, ㉑ and ㉒ of the IC751 to go down to "Low" level in the order. At the time, the APLD program indicators [3] (D763), [2] (D762) and [1] (D761) light up one after another.

   When the final pulse (this refers to the 3rd program space pulse in our discussion) enters the IC751, the potential of pin ⑨ of the IC751 gets "Low" level to put the plunger drive circuit into action.

■ **PLUNGER DRIVE CIRCUIT** (Refer to Figure 16 and 17)

When the potential of pin ⑨ of the integrated circuit (IC751) comes to "Low" level, a bias current is caused to run in the transistor (Q754) for it to get turned on, and the transistor (Q755) is turned on also. This results in the plunger begins to operate resetting the forward or rewind APLD key so that the set assumes playback mode again. At this time, the forward or rewind APLD switch (SW503 or SW502) becomes inactive to terminate APLD operation.

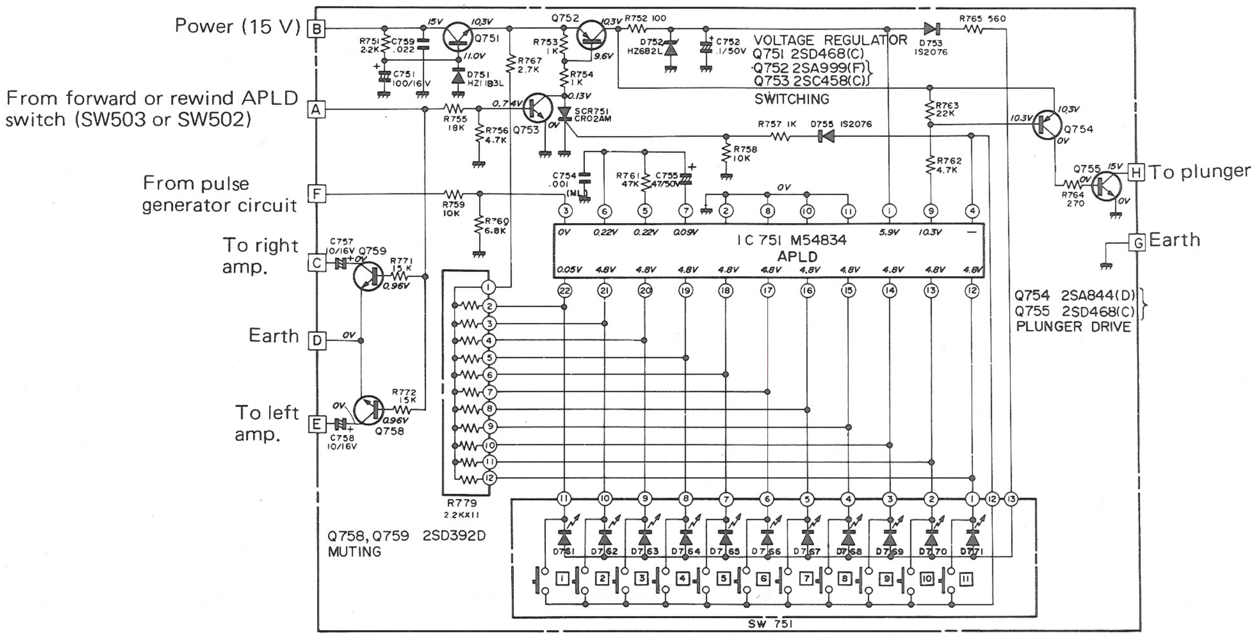


Figure 18 APLD CONTROL CIRCUIT

- **INDICATOR CIRCUIT** (Refer to Figure 18)
The APLD program indicator comprises eleven red LEDs (D761 to D771) and the relation between the number of programs and the corresponding pins of the IC751 is as follows:
"1" = pin ㉒, "2" = pin ㉑, "3" = pin ⑳, ---"11"= pin ⑫. When the potential of each pin is at "Low" level, the respective LED lights up.

- **MUTING CIRCUIT** (Refer to Figure 18)
When the forward or rewind APLD key is pushed, the forward or rewind APLD switch (SW503 or SW502) gets turned on to feed a power to the bases of the transistors (Q758 and Q759) for them to turn on. Turning on of the two transistors will reduce playback volume during the time the set continues program-to-program spaces detection.

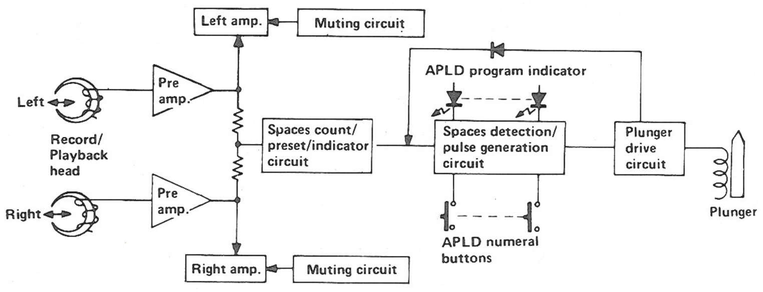

Left amp.
Muting circuit
APLD program indicator
Left
Pre amp.
Record/ Playback head
Spaces count/ preset/indicator circuit
Spaces detection/ pulse generation circuit
Plunger drive circuit
Plunger
Right
Pre amp.
APLD numeral buttons
Right amp.
Muting circuit

Figure 19 BLOCK DIAGRAM

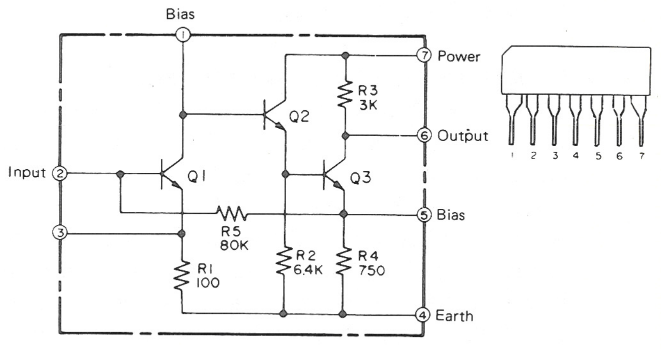
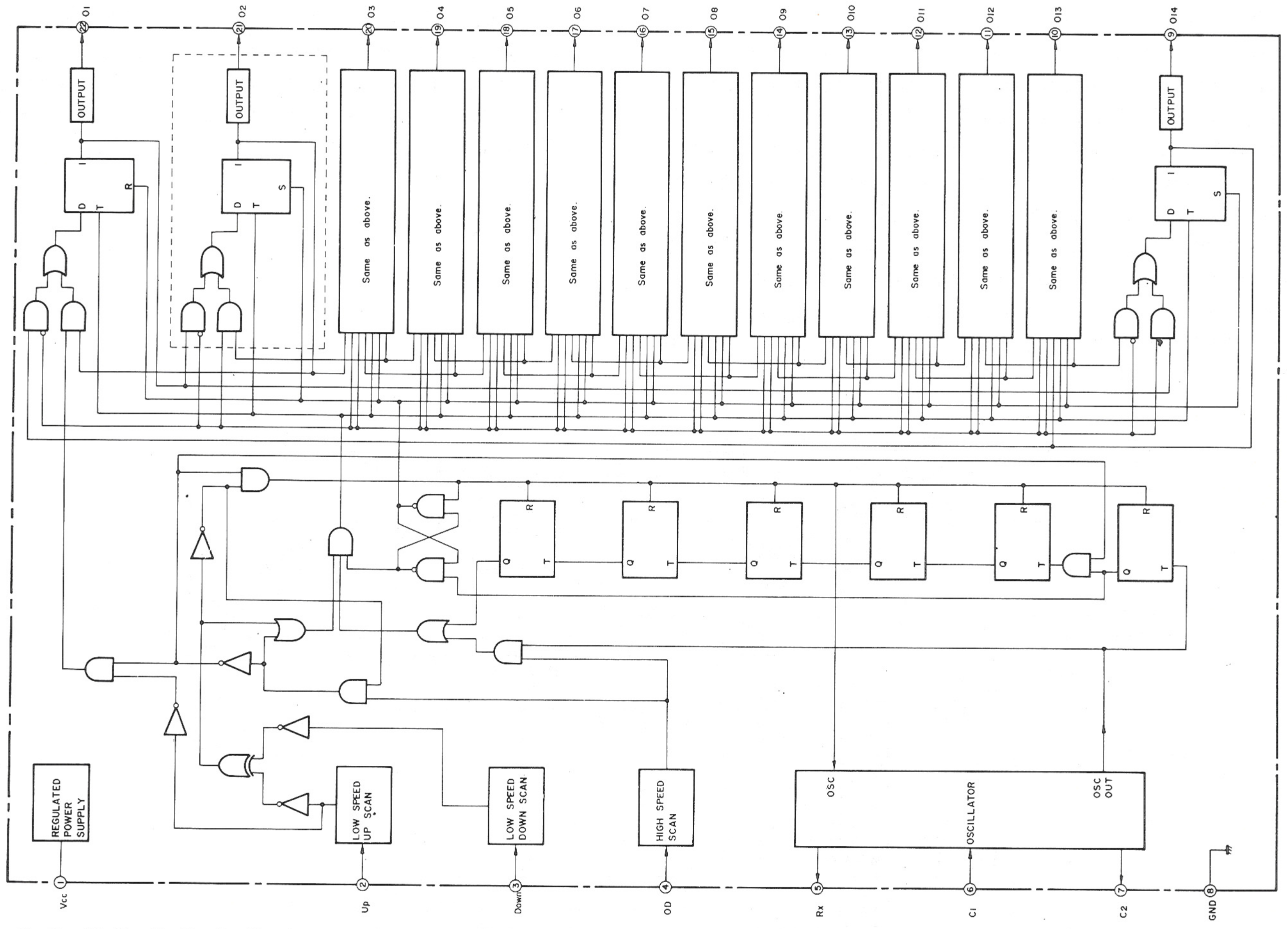
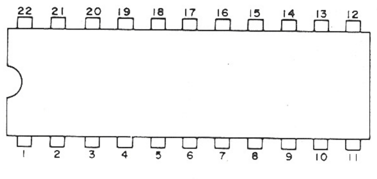

Bias
①
⑦ Power
R3 3K
Q2
⑥ Output
Input ②
Q1
Q3
⑤ Bias
③
R5 80K
R1 100
R2 6.4K
R4 750
④ Earth
1 2 3 4 5 6 7

Figure 20 EQUIVALENT CIRCUIT OF IC701 (TA7120P)


OUTPUT
Same as above.
OUTPUT
REGULATED POWER SUPPLY
LOW SPEED UP SCAN
LOW SPEED DOWN SCAN
HIGH SPEED SCAN
OSC
OSCILLATOR
OSC OUT
Vcc
Up
Down
OD
Rx
Ct
C2
GND


22 21 20 19 18 17 16 15 14 13 12
1 2 3 4 5 6 7 8 9 10 11

(TOP VIEW)

Figure 21 EQUIVALENT CIRCUIT OF IC751 (M54834)

BEHAVIORS OF SNRS (SUPER NOISE REDUCTION SYSTEM)

- **WHAT'S SNRS?**
SNRS is short for the Super Noise Reduction System, and is intended to remove noise — even without affecting the high pitch sounds, the characteristic of which is much suited to the human ear sensitivity.
In general, it is for us to become very sensitive to the noise component if mixed in less strong signals but not so much to those in the strong signals; in addition, our sense desires to cut off the noise in listening to the low-frequency tunes — when the frequency grows more and more high, and the reduction of its extra high component is also realized.
Taking this into account, the SNRS is permitted to automatically follow how the input signal (sound source) changes in its intensity and frequency, and hence to compensate for our audible sense.

- **FUNCTION OF THE SNRS:**
The SNRS, made of transconductance operational amplifier, changes its conductance via external bias current, the function of which is an equivalent of a low-pass filter. The result is to cut off disagreeable noises by changing the fo (cut-off frequency of the low-pass filter) according to how much the input signal changes intensity and frequency.

(1) Mixing Amplifier and High-Pass Filter
(Refer to Figure 22 and 23)
The signals coming from the preceding stage are applied to the buffer amplifier made of transistors Q551 and Q552, then they are mixed together via the resistors R559 and R560, and divided by the resistors R559 and R560, resulting in a decision of the output signal level.
The new signal then enters the high-pass filter and the mixing amplifier through which its high-frequency component is amplified; the high-pass filter's frequency characteristic is determined by the capacitors C559, C560 and C565 and the resistors R570 and R576 the fo of the high-pass filter is about 6 kHz; the gain of the mixing amplifier is of 10 kHz, 30 dB. For an overall characteristic of the high-pass filter and the mixing amplifier, refer to Fig. 24.
The integrated circuit IC552, called the dual operational amplifier, has two functions; one channel subject to the mixing amplification and the other to the peak detector amplification. To pin ③ (input) of the IC552 is applied power-supply voltage whose value is reduced to approx. 7V via the resistors R575 and R573.

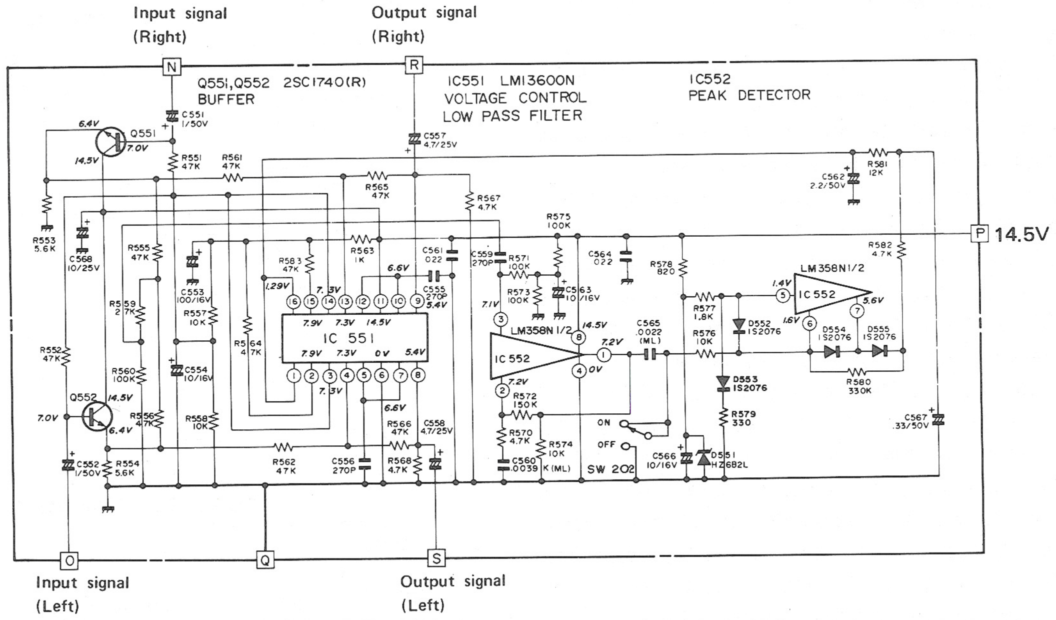

Input signal (Right)
Output signal (Right)
N
R
Q551,Q552 2SC1740(R) BUFFER
IC551 LM13600N VOLTAGE CONTROL LOW PASS FILTER
IC552 PEAK DETECTOR
P 14.5V
IC 551
IC 552
LM358N 1/2
SW 202
ON
OFF
O
Q
S
Input signal (Left)
Output signal (Left)

Figure 22 SNRS CIRCUIT

(2) Peak Detector Amplifier

Coming from the mixing amplifier and high-pass filter, the signal is applied via resistor R576 to pin ⑥ of the integrated circuit IC552 (to serve as a peak detector amplifier) where it is amplified by 30 dB, then comes out at its pin ⑦, the output is half-wave rectified by the diode D554 so that its only positive half is allowed to become effective, and it is smoothed by the resistor R582 and the electrolytic capacitor to become D.C. voltage signal — this output increases proportionally to the intensity of the input signal. The function of the diode D554 is that it, if a negative signal is present at pin ⑦, causes the resistor R580 and diode D554 to be shorted to make the gain zero, so that any negative signal does not arise, and only the positive signal is allowed to generate.

* Voltage gain of the peak detector amplifier:

$$20 \log \frac{R580}{R576} \ \text{(dB)}$$

The diode D555 is intended to prevent the resultant positive signal from going back to pin ⑦ of the IC552, the diode D552, to protect the peak detector amplifier against an excess of the input; the resistor R577, resistor R579 and diode D553, to keep pin ⑤ at a constant voltage 1.4V.

The following shows how the peak detector amplifier behaves in either the "ON" or "OFF" position of the SNRS switch.

- **In the case of the SNRS "OFF"**

  One end of the resistor R576 is earthed so that the voltage (1.4V) at pin ⑤ of the IC552 increases to 14.5V (30 dB up) to come out at its pin ⑦.

  The new voltage then enters the resistor R582 and the resistor R581 to make the bias current increase accordingly, for it to reach pins ① and ⑯ of the integrated circuit IC551.

- **In the case of the SNRS "ON"**

  When no input signal is present, the earthing of the resistor R576 is removed, so the gain of the peak detector amplifier becomes to have "1" and there appears 1.4V at pin ⑦ of the IC552. When, on the other hand, there exists an input signal, it is applied via the resistor R576 to pin ⑥ of the IC552 to be amplified by 30 dB going out of its pin ⑦, according to its intensity, this amplified signal causes the said voltage kept at 1.4V to increase or decrease via the electronic capacitor C567, so that the bias current is amplified to arrive at the integrated circuit IC551 via the resistor R581.

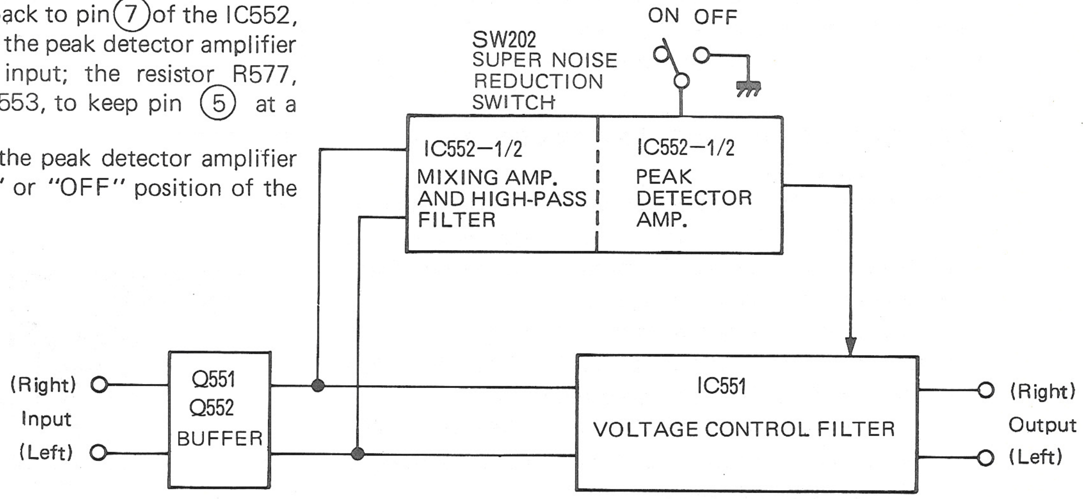


Figure 23 BLOCK DIAGRAM

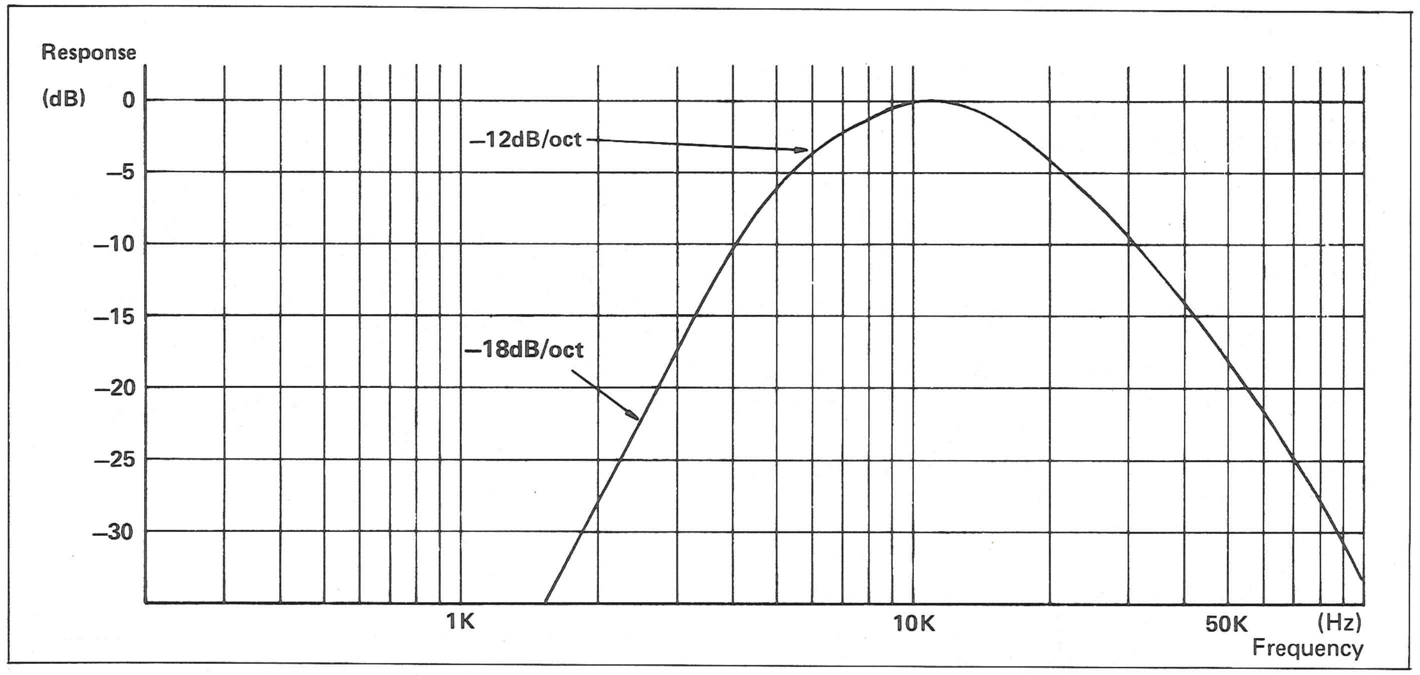


Figure 24 HIGH-PASS FILTER'S FREQUENCY CHARACTERISTIC

(3) Voltage Control Filter

(Refer to Figure 25 and 26)

The bias current (I_{ABC}) coming from the peak detector amplifier is fed to pins ① and ⑯ of the integrated circuit IC551 — to serve a transconductance operational amplifier, whose conductance varies in proportion to the strength of such I_{ABC}, the capacitors C555 and C556 that are earthed via pins ⑤ and ⑫ of the IC551 form a –6 dB/oct. low-pass filter, the fo (cut-off frequency) of which is changed according to how much the bias current has occurred so as to cut off undesired, high-frequency noises.

- The fo of the low-pass filter can be calculated in the following.

  Refer to Fig. 25.

  $$fo = \frac{Gm}{2\pi C_1} \quad \text{[Gm: conductance (mho)} \quad C_1\text{: capacitor (C556)]}$$

  $$Gm = K_1 \cdot I_{ABC} \quad [K_1\text{: coefficient, } I_{ABC}\text{: Amplifying bias current]}$$

  Then,

  $$fo = \frac{Gm}{2\pi C_1} = \frac{K_1}{2\pi C_1} \cdot I_{ABC} = K_2 \cdot I_{ABC}$$

  $[K_2$: coefficient]

  In practice:

  In the case the SNRS switch is at OFF,

  $I_{ABC} = 300\ \mu A$, fo = 50 kHz

  In the case the SNRS switch is at ON;

  a. $I_{ABC} = 10\ \mu A$, fo = 1.6 kHz — with no signal, the function selector switch at "tape"

  b. $I_{ABC} = 150\ \mu A$, fo ≒ 25 kHz — with signal [10kHz, –20 dB (25 pwb/mm^2)], the function selector switch at "tape"

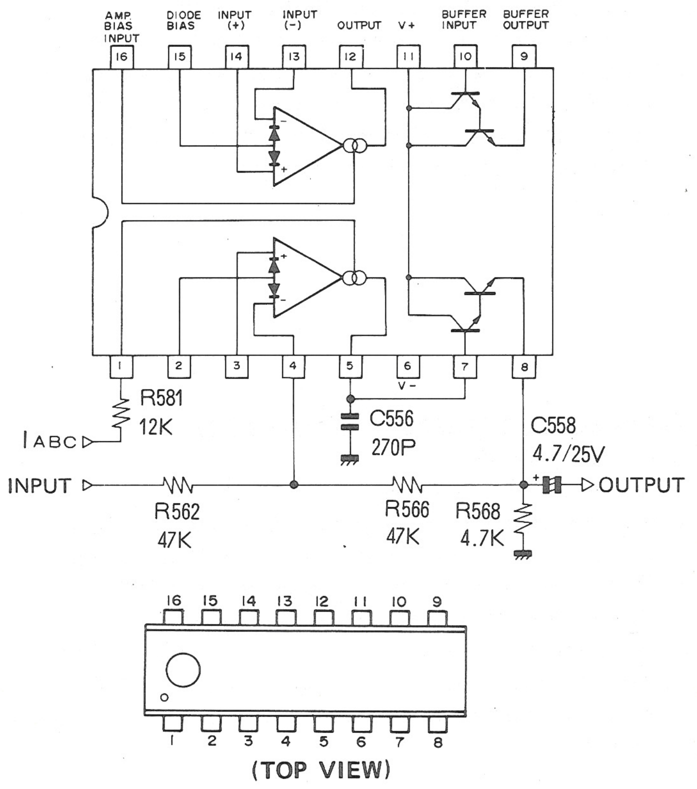


Figure 25 LOW-PASS FILTER'S CIRCUIT AND EQUIVALENT CIRCUIT OF IC 551 (LM13600N)

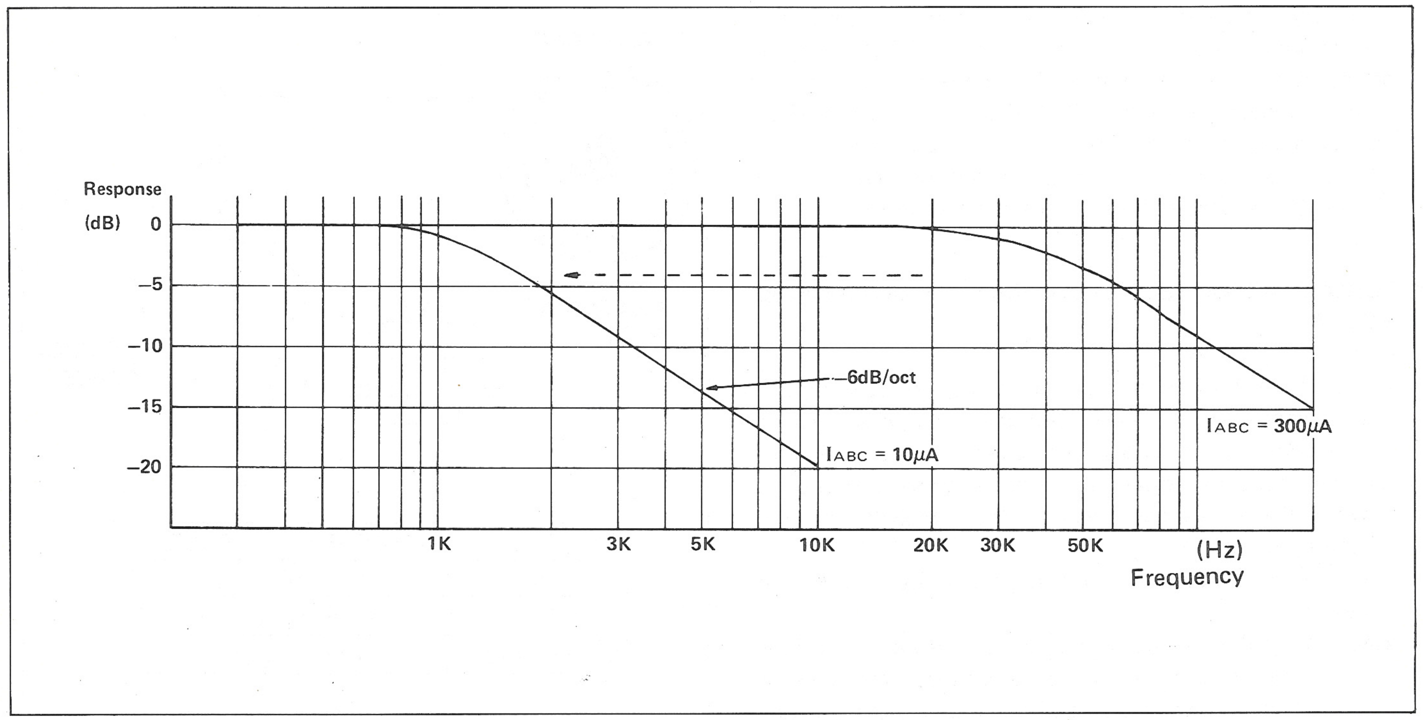


Figure 26 LOW-PASS FILTER'S FREQUENCY CHARACTERISTIC (I_{ABC} = 10μA, 300μA)

MECHANICAL ADJUSTMENT

■ FLYWHEEL THRUST CLEARANCE ADJUSTMENT

(Refer to Figure 27)

1. Slowly rotate the flywheel thrust clearance adjusting screw clockwise until there will be no thrust clearance.
2. Next, rotate the thrust clearance adjusting screw about 1/4 of its full turn counter clockwise. (Since 1 pitch of the adjusting screw refers to 0.8mm, the thrust clearance thus created becomes 0.1mm to 0.3mm.)

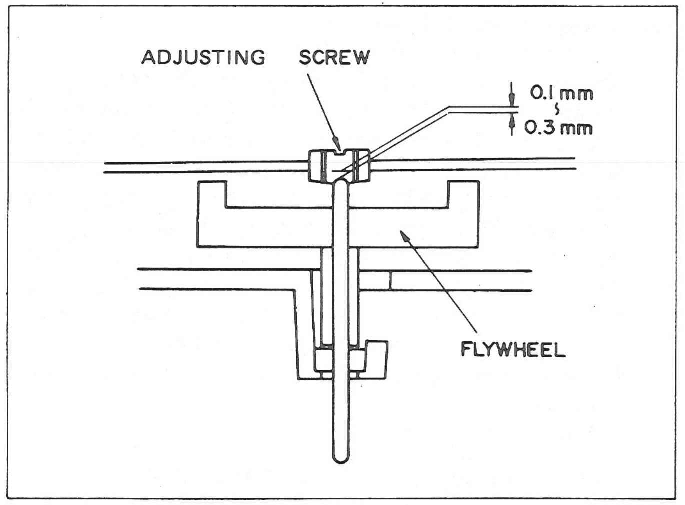


Figure 27

■ PINCH ROLLER PRESSURE ADJUSTMENT

(Refer to Figure 28)

1. Set the unit in play mode.
2. Push the point Ⓐ with a tension gauge (0 gr. to 500 gr.) to make the pinch roller apart from the flywheel shaft. Then, check that the tension gauge will read 300 gr. to 400 gr. When the pinch roller stops to rotate.
3. As a result of the check in the step 2 above, if the reading is found outside the range of 300 gr. to 400 gr., adjust the pressure spring of pinch roller by bending it or replace.

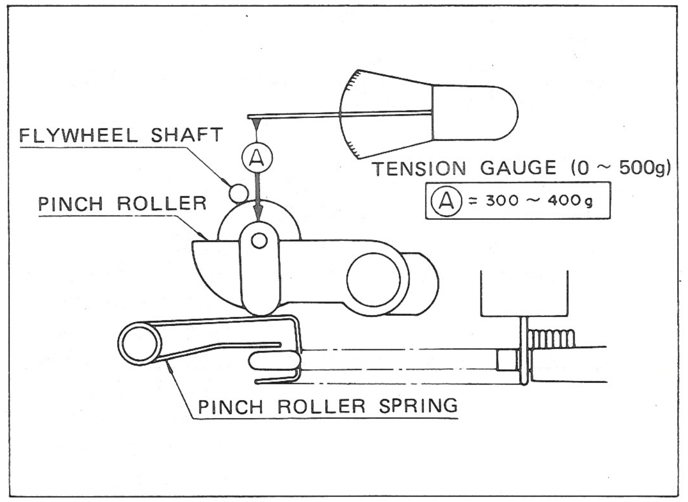


Figure 28

■ OPERATION CHECK OF FWD-APLD AND REV-APLD MECHANISMS

(Refer to Figure 58 and 59 on Page 35 and 36)

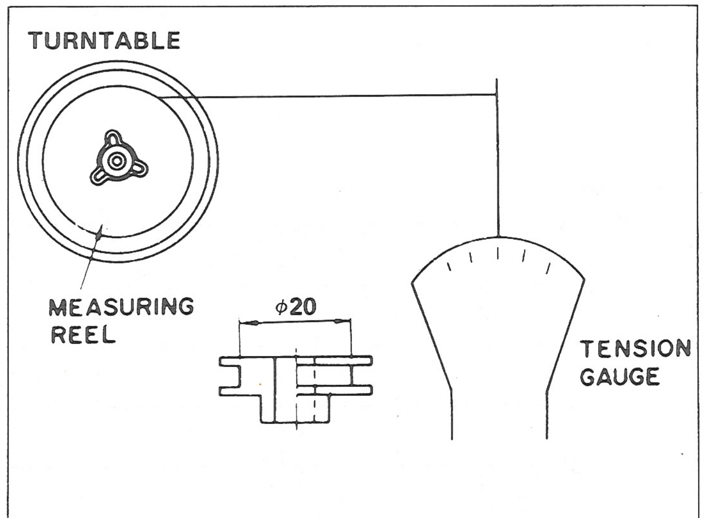
Under play mode, slowly push the FWD-APLD key or REV-APLD key to make sure that the pinch roller (74) and the take-up idler (16) come off respectively from the flywheel shaft and the take-up turntable (65), and simultaneously the sub-chassis (09) moves 1mm to 1.5mm, and further that thereafter, the roller assembly (73) is pressed against the take-up turntable (65) or the supply turntable (66). Moreover, when the FWD-APLD key or REV-APLD key is released by pushing the FF (CUE) key or the REWIND (REVIEW) key, make ascertain that the sub-chassis (09) is reset and the unit gets in play mode.

■ TORQUE MEASUREMENT AT PLAY, FF AND REWIND MODES

(Refer to Figure 29)

1. Mount a torque measuring reel on the turntable (that is, it is placed on the take-up turntable at play/fast forward mode while on the supply turntable at rewind mode).
2. Then gradually release the tension gauge and read it when the rotational speed of the turntable becomes almost constant.
3. Measured torques at each mode should be as tabulated below.

Note: When the take-up turntable is stopped at play mode, there should be no slip between the take-up turntable and take-up slip roller and/or between the drive belt and take-up slip roller.



Mode	MEASURED TORQUE
PLAY	38 ~ 60 gr.cm
FF	70 ~ 110 gr.cm
REWIND	70 ~ 110 gr.cm

Figure 29

■ GAP ADJUSTMENT BETWEEN MOTOR SWITCH AND BRAKE LEVER

(Refer to Figure 30)

1. Under each of play, fast forward and rewind modes, make ascertain that the motor switch (SW501) is turned on without fail.
2. When the motor is in a stop, check that the gap Ⓐ between the brake lever and the motor switch (SW501) is 2mm to 3mm.
3. If the steps 1 and 2 above are still insufficient for the adjustment, the gap can be adjusted by positionally changing the two soldered terminals Ⓑ of motor switch (SW501) located at the motor P.W.B.

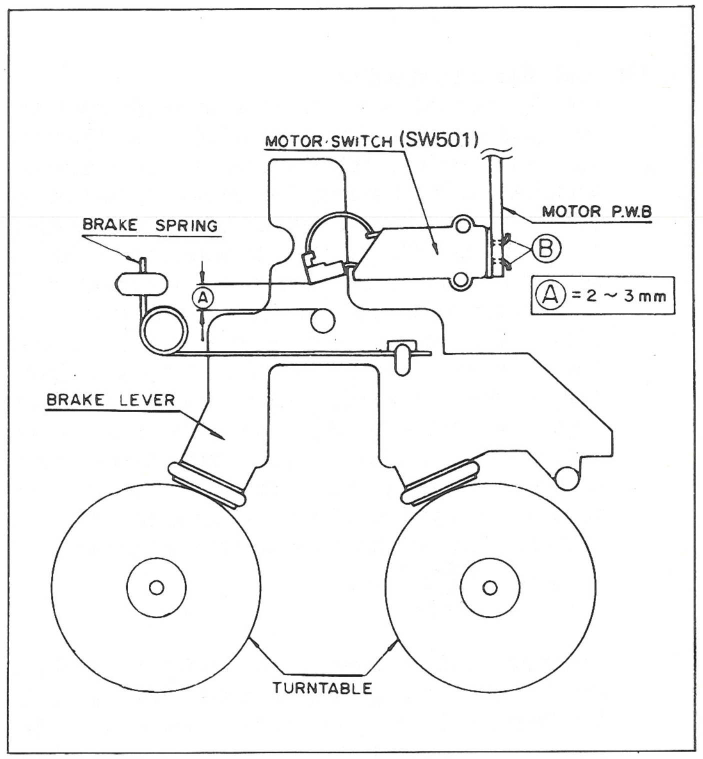


Figure 30

■ OPERATION CHECK OF PAUSE MECHANISM

(Refer to Figure 58 on Page 35)

Set the unit in play mode by pushing the play key. Then slowly push the pause key and make ascertain that the take-up idler (16) and the pinch roller (74) come off respectively from the take-up turntable (65) and the flywheel shaft almost at the same time and check that each of the two gaps thus produced is about 0.5mm.

■ ADJUSTMENT OF PLUNGER SETTING POSITION

(Refer to Figure 31)

1. Under fast forward mode, loosen the plunger retaining screw, hold up the part Ⓐ of the plunger by hand and while keeping the plunger in contact with the lock shaft, retighten the plunger retaining screw.
2. After the step 1, make sure of the following.
   - Check that each of the PLAY, FF (CUE), REWIND (REVIEW) keys can be locked smoothly.
   - Check that the FWD-APLD key and REV-APLD key can be locked smoothly and they further be released when the plunger operates.
   - Check that the plunger can start to operate smoothly when the STOP key is pushed to release the APLD keys.
3. After the step 2, the adjustments are not yet sufficient, again carry out the step 1.

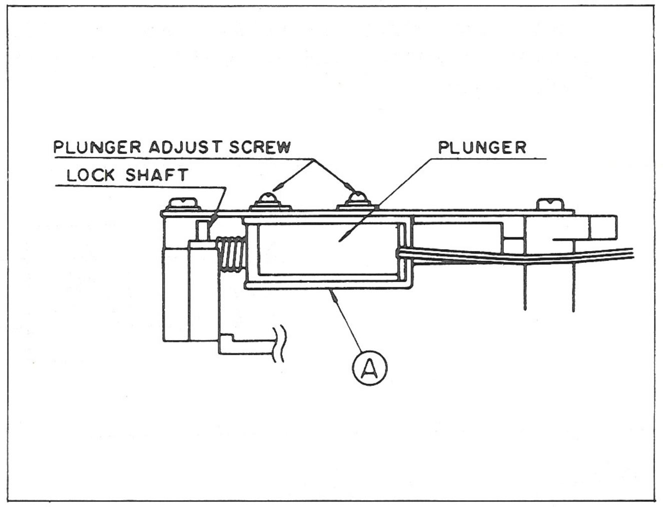


Figure 31

■ TAPE SPEED ADJUSTMENT

(Refer to Figure 32)

1. Connect a frequency counter, across a load resistor (4 ohms, 2W), to the EXT. speaker socket (SO103 or SO104).
2. Set the Tape Speed adjust Control (VR501) to the center position.
3. Use a test tape (MTT-111, –10dB, 3kHz), to be played back (at the midpoint but not at the running start or end point).
4. Adjust the semi-variable resistor so that the frequency counter reads 2970 to 3030Hz – using a bladed screwdriver via the hole at the motor's bottom.

Note:

Prior to the adjustment, check that there is no stain and no other impurities on the motor pulley, drive belt, flywheel, take-up pulley, take-up idler and take-up turntable.

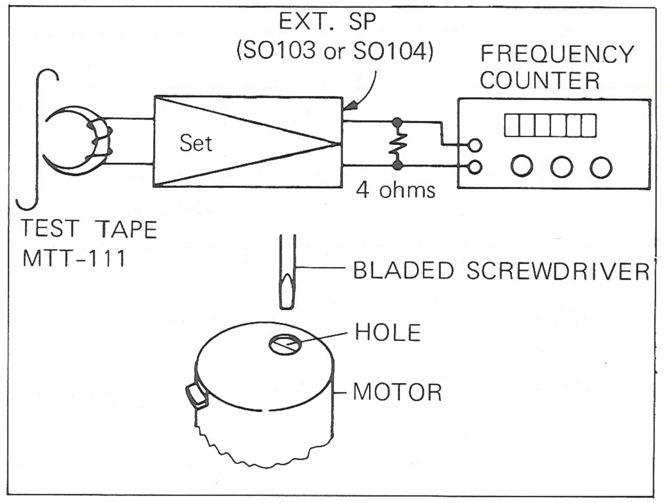


Figure 32

ELECTRICAL MEASUREMENT

* This unit operates on DC 15V. Check that the power supply is exactly 15V before measurement.

* Set the power switch (SW702) to on position.

* Refer to Figure 50.

■ BIAS CURRENT AND BIAS OSCILLATION FREQUENCY ADJUSTMENT OF RECORD AMPLIFIER

(Refer to Figure 33)

1. Connect V.T.V.M. to the test point TP101 (for right channel) or TP-102 (for left channel) and to the ground (TP-103).
2. Connect an oscilloscope (vertical input) to the output terminal of V.T.V.M. and a frequency counter thereto.
3. Set the tape selector switch (SW201) at "normal" or "CrO_2"

- Bias current

4. Place the set in record mode, and adjust the semivariable resistor R301 (for right channel) or R302 (for left channel) so that the V.T.V.M. reads 42 mV. Changing the tape selector switch to "metal" position, see that the V.T.V.M. reading becomes 76±5mV.

- Bias oscillation frequency (with the tape selector switch at "normal" position)

5. At the time, see that the frequency counter is reading 53±0.5kHz. If the reading is outside 53±0.5kHz, adjust the bias oscillation coil (L301) and again check the bias current in Step 4.
   Changing the beat cancel switch from "A" to "B" position, see that the frequency counter changes 1.0 to 2.0 kHz from what it was. ("A" ↔ "C" position: 5.0~7.0kHz)

SWITCH	POSITION
tape (SW101-F) beat cancel (SW301)	on A

VR CONTROL	POSITION
record level (R147) record level (R148)	maximum maximum

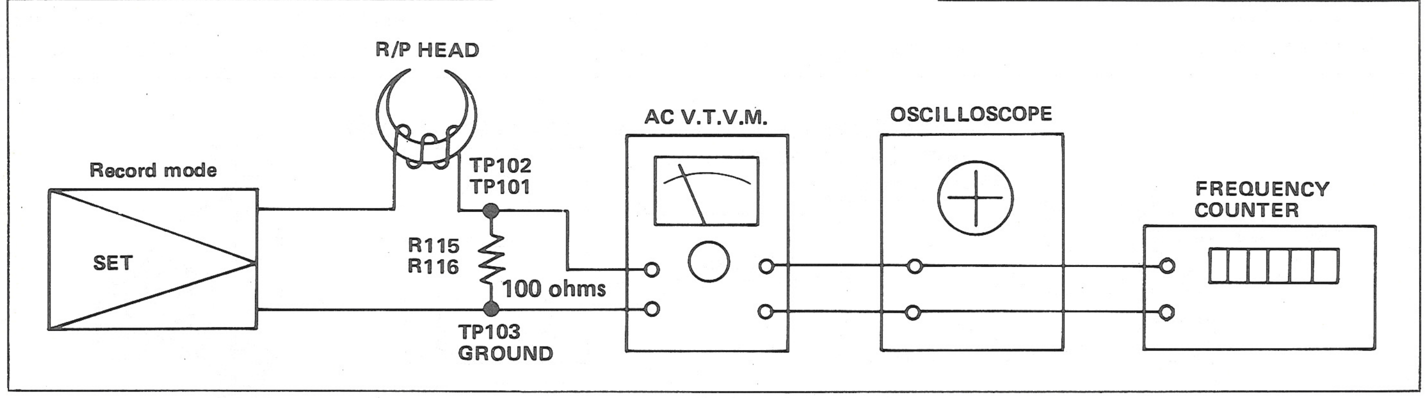

R/P HEAD
Record mode
SET
TP102
TP101
R115
R116
100 ohms
TP103
GROUND
AC V.T.V.M.
OSCILLOSCOPE
FREQUENCY COUNTER

Figure 33

■ ERASE CURRENT CHECK

(Refer to Figure 34)

1. Connect V.T.V.M. to the test point TP-301 and to the ground (TP-302).
2. Set the tape selector switch (SW201) at "metal" position.
3. Place the set in record mode, and see that the V.T.V.M. reads 240±40mv.
   Changing the tape selector switch to "normal" or "CrO_2" position, see that the V.T.V.M. reading becomes 130±20mV.

SWITCH	POSITION
tape (SW101-F) beat cancel (SW301)	on A

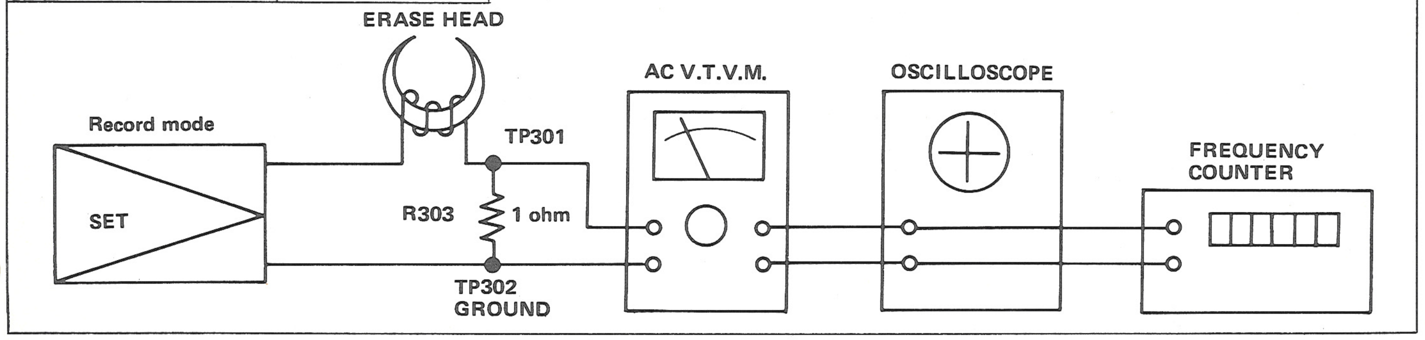

ERASE HEAD
Record mode
SET
TP301
R303
1 ohm
TP302
GROUND
AC V.T.V.M.
OSCILLOSCOPE
FREQUENCY COUNTER

Figure 34

■ RECORD AMPLIFIER SENSITIVITY CHECK

(Refer to Figure 35)

1. Connect V.T.V.M. to the test point TP-101 (for right channel) or TP-102 (for left channel) and to the ground (TP-103).
2. Shortcircuit the secondary side of the bias oscillation coil (L301) to stop bias oscillation.
3. Connect the signal generator to the EXT MIC sockets J101 (for right channel) and J102 (for left channel) at a time, and apply signal (1 kHz oscillation) to the set.
4. Place the set in record mode, and check that the V.T.V.M. reads 1.75 mV accompanied by the input signal whose level is indicated in Table.
5. For the other input sockets shown in Table, follow the instructions in steps 3 and 4.

Note:
When checking the sensitivity at the MIX. MIC socket, set the mixing switch (SW104) at "on" position and rotate the fader control fully toward "mic" position.

(1V = 0dB)

INPUT SOCKET	INPUT LEVEL
EXT. MIC	–76±3dB
MIX. MIC	–66±3dB
DIN IN	–56±3dB
PHONO	–62±3dB

SWITCH	POSITION
tape (SW101-F) tape selector (SW201) recording mode selector (SW105) mode selector (SW107)	on normal auto stereo

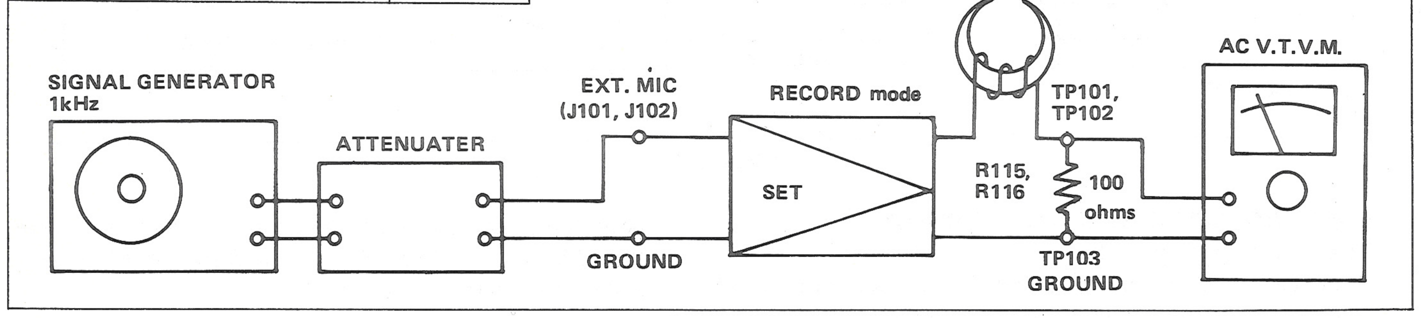

R/P HEAD
SIGNAL GENERATOR
1kHz
ATTENUATER
EXT. MIC
(J101, J102)
GROUND
RECORD mode
SET
TP101,
TP102
R115,
R116
100
ohms
TP103
GROUND
AC V.T.V.M.

Figure 35

■ PLAYBACK AMPLIFIER SENSITIVITY CHECK

(Refer to Figure 36)

1. Connect V.T.V.M. across a load resistor (8 ohms, 15W), to the inside speaker terminals right channel and left channel.
2. Connect the signal generator to the record/playback head (at the red lead side) and to the ground and apply signal of 1 kHz oscillation (input level: 0.1 V = –20 dB) to the set.
3. Place the set in play mode, and see that when the V.T.V.M. reads 1.0 V, the input level is –82 ±2 dB.

Note:
This set is designed to have BTL (balanced transformerless) connection at its output circuit. This disables its common connection with the speaker ground terminal.

SWITCH	POSITION
tape (SW101-F) tape selector (SW201) mixing (SW104) mode selector (SW107) loudness (SW108)	on normal off stereo off

VR CONTROL	POSITION
volume (R227, R228) treble (R195, R196) bass (R201, R202)	maximum mechanical center mechanical center

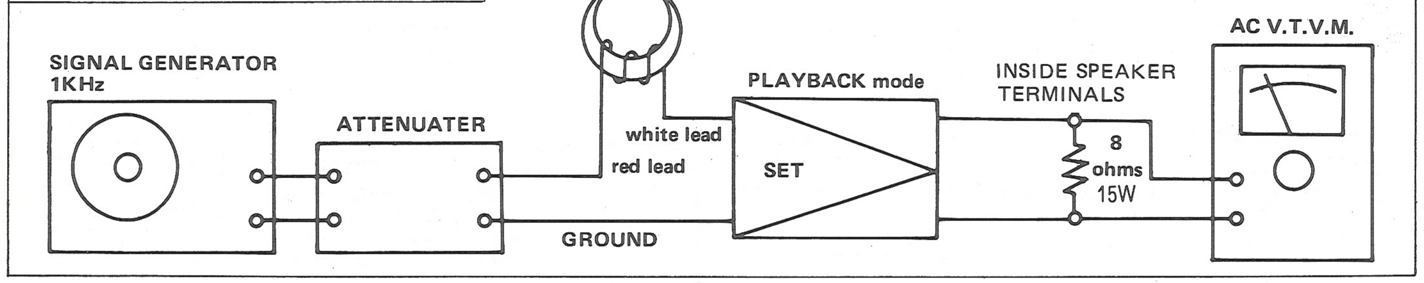

R/P HEAD
SIGNAL GENERATOR
1KHz
ATTENUATER
white lead
red lead
GROUND
PLAYBACK mode
SET
INSIDE SPEAKER TERMINALS
8
ohms
15W
AC V.T.V.M.

Figure 36

CAUTION: The inside speaker terminals are 8 ohms.
The external speaker sockets are 4 ohms.
The voltage gain of external speaker socket decreases 6 dB.

■ PHONO AMPLIFIER SENSITIVITY CHECK

(Refer to Figure 37)

1. Connect a load resistor (8 ohms) to the inside speaker terminals and further connect the V.T.V.M. thereto.
2. Connect the signal generator to the phono sockets (J105, J106) and apply signal (1kHz, –54 dB) to the unit.
3. Place the unit in phono mode.
4. If the phono amplifier sensitivity is normal, the reading on the V.T.V.M. should be approximately 4V.

SWITCH	POSITION
phono (SW101-E)	on
mode selector (SW107)	stereo
loudness (SW108)	on

VR CONTROL	POSITION
volume (R227, R228)	maximum
treble (R195, R196)	mechanical center
bass (R201, R202)	mechanical center

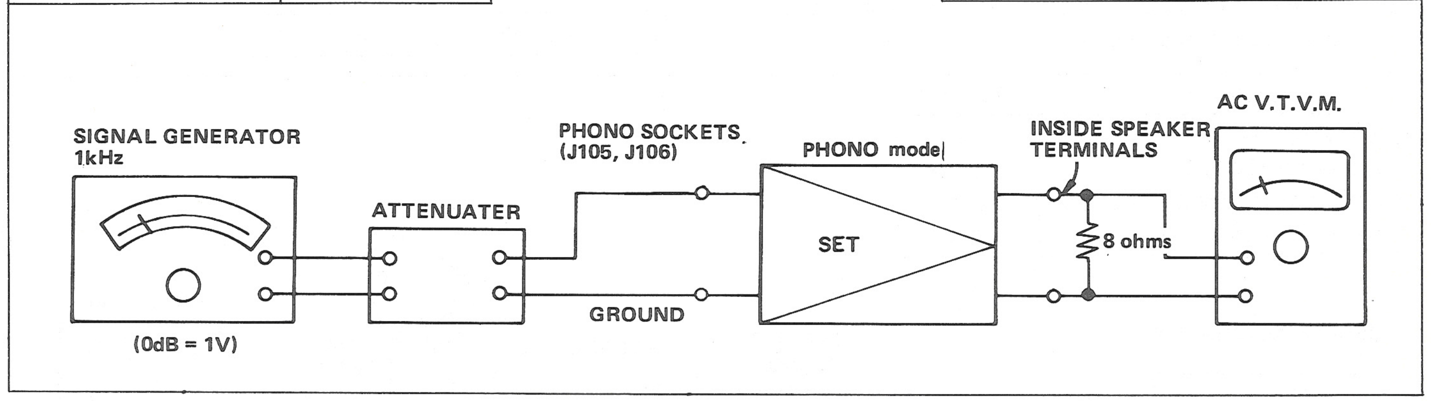

SIGNAL GENERATOR
1kHz
(0dB = 1V)
ATTENUATER
PHONO SOCKETS
(J105, J106)
GROUND
PHONO mode
SET
INSIDE SPEAKER
TERMINALS
8 ohms
AC V.T.V.M.

Figure 37

■ LEVEL INDICATOR SENSITIVITY CHECK

(Refer to Figure 38 and 39)

1. Connect V.T.V.M. to the test point TP-101 (for right channel) or TP-102 (for left channel) and to the ground (TP-103).
2. Shortcircuit the secondary side of the bias oscillation coil (L301) to stop bias oscillation.
3. Connect the signal generator to the EXT MIC socket J101 (for right channel) or J102 (for left channel) [input level: –57 dB (0.1V = –20 dB)] to the set.
4. Place the set in record mode, and adjust the record level control R147 (for right channel) or R148 (for left channel) so that the V.T.V.M. reads 3.5 mV.
5. Adjust the semi-variable resistor (R183), the left hand one, so that the right and left LED meters indicate the same value: the right hand resistor is fixed not to be movable.

After that, move the record level controls (R147 and R148) to and fro in order to see that the right and left LED meters will have the same indication.

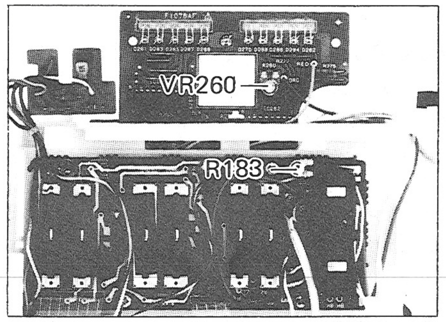


Figure 38

SWITCH	POSITION
tape (SW101-F)	on
recording mode selector (SW105)	manual
mode selector (SW107)	stereo

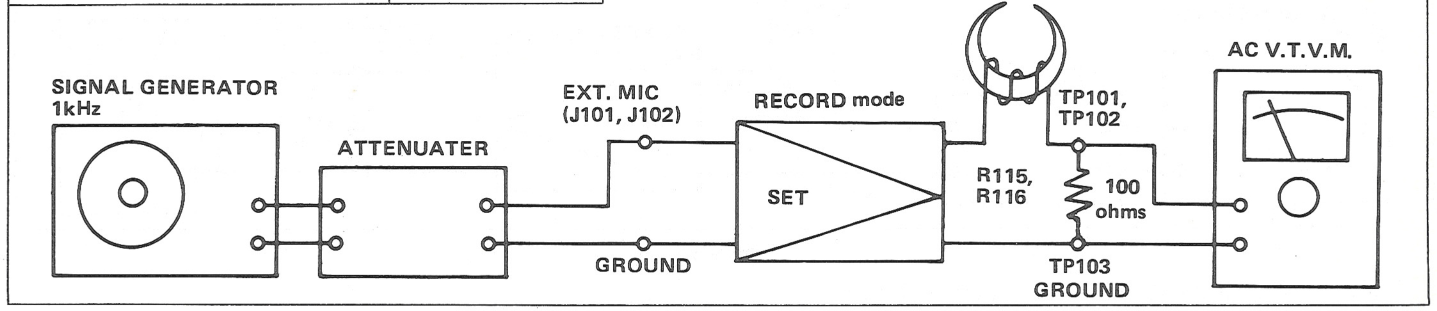

SIGNAL GENERATOR
1kHz
ATTENUATER
EXT. MIC
(J101, J102)
GROUND
RECORD mode
SET
R/P HEAD
TP101,
TP102
R115,
R116
100
ohms
TP103
GROUND
AC V.T.V.M.

Figure 39

■ BATTERY INDICATOR SENSITIVITY CHECK

(Refer to Figure 38 and 40)

1. Connect a DC power source (regulated at DC 14.8V) to the battery terminal, and turn on the power switch (SW702).
2. Set the meter selector/dial light switch (SW109) at "tune/battery" position, and adjust the semi-variable resistor (VR260) so that the four LEDs (green: D270, D268 and D266, red: D264) light up and the fifth LED (red D262) is about to light up.

Note:
The fifth LED (red D262) must light up if given 15.0 V, and the fourth and fifth LEDs (D264 and red D262) must go off if given 10.6 ± 0.6V.

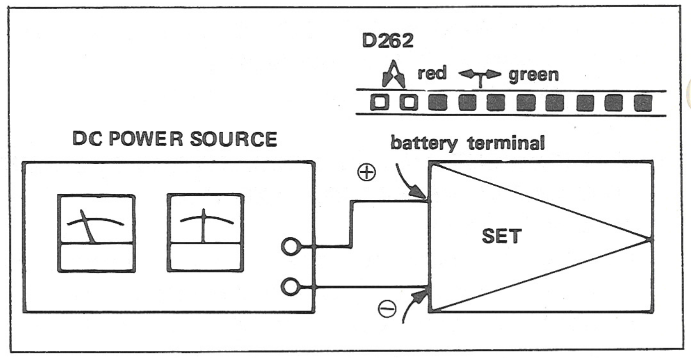

D262
red
green
DC POWER SOURCE
battery terminal
⊕
⊖
SET

Figure 40

■ RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT

(Refer to Figure 41)

1. Connect output signals from the record/playback socket (DIN type) right output (5) and left output (3), to the input terminals CH-1 and CH-2 of a dual-beam oscilloscope. (See Note 1)
2. Play a test tape (MTT-114, 10 kHz –10dB), and adjust the head azimuth adjusting screw so that the output signals from both channels will have maximum waveform with the same phase in right and left.
3. In case of not using the oscilloscope, also adjust the head azimuth adjusting screw so that the output from either channel will be maximale.

Check that the output is not decreased so much even if the mode selector switch (SW107) is set at "mono" position.

Note:
This set is designed to have BTL (balanced transformerless) connection at its output circuit. This disables its common connection with the speaker ground terminal. So the azimuth adjustment must be performed at the record/playback socket.

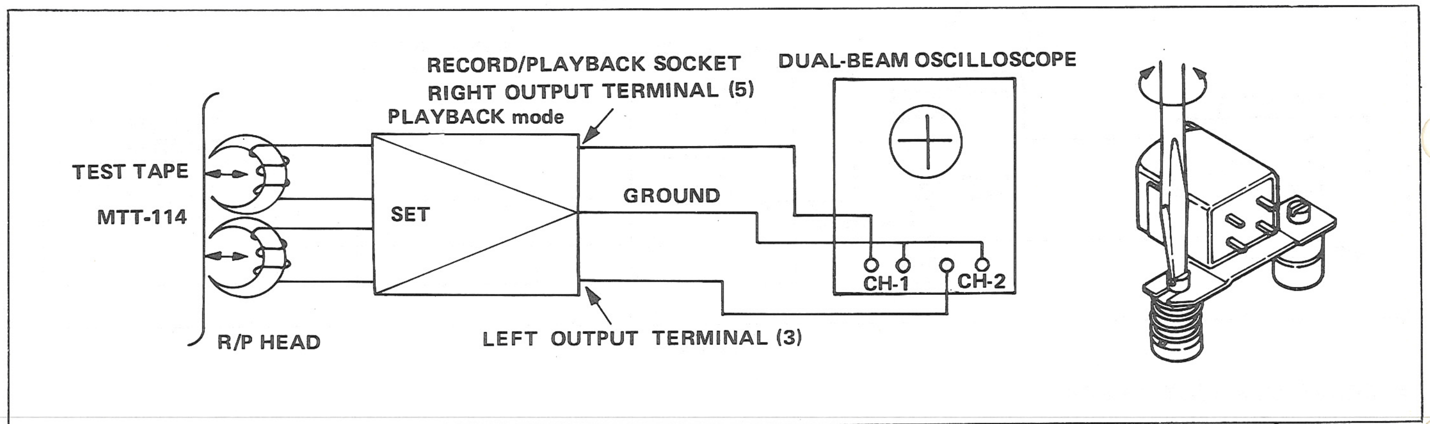
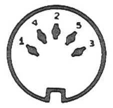

TEST TAPE
MTT-114
R/P HEAD
RECORD/PLAYBACK SOCKET
RIGHT OUTPUT TERMINAL (5)
PLAYBACK mode
SET
GROUND
LEFT OUTPUT TERMINAL (3)
DUAL-BEAM OSCILLOSCOPE
CH-1
CH-2

Figure 41

NOTE 1

DIN socket



1. Left Input
2. Common Earth
3. Left Output
4. Right Input
5. Right Output

GENERAL ALIGNMENT INSTRUCTION

Should it become necessary at any time to check the alignment of this receiver, proceed as follows;

1. Set the volume control (R227, R228) to maximum.
2. Attenuate the signals from the generator enough to swing the most sensitive range of the output meter.
3. Use a non-metallic alignment tool.
4. Repeat adjustments to insure good results.
5. Set the power switch (SW702) to "on" position.

Note:
This set is designed to have BTL (balanced transformerless) connection at its output circuit. This disables its common connection with the speaker ground terminal.

THE INSTRUCTION OF FREQUENCY ADJUSTMENT

In order to comply with FTZ rule: Nr. 358/1970, please fix the low end of dial frequency (87.5MHz) and the high end of dial frequency (107.9MHz) on FM band, by adjusting oscillation coils (L3 and L4) and oscillation trimmer (TC2), respectively, as illustrated in Figure 50.

AM ALIGNMENT CHART

(Refer to Figure 50)

STEP	BAND	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
			CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	MW	IF	Refer to Figure 42.	Exactly 455 kHz. (400 Hz, 30%, AM modulated)	High end of dial. (minimum capa-city)	Adjust for maximum output.	Adjust the AM IF transformers (T3) (T4)
2	MW	Band Coverage	Refer to Figure 42.	Exactly 510 kHz. (400 Hz, 30%, AM modulated)	Low end of dial. (maximum capa-city).	Adjust for maximum output.	Adjust the MW oscillation coil (L 9).
3	MW		Same as step 2.	Exactly 1650 kHz. (400 Hz, 30%, AM modulated)	High end of dial. (minimum capa-city).	Same as step 2.	Adjust the MW oscillation trimmer (TC7).
4	MW	Tracking	Same as step 2.	Exactly 600 kHz. (400 Hz, 30%, AM modulated)	600 kHz.	Same as step 2.	Adjust the MW antenna coil (L7). (See Note A)
5	MW		Same as step 2.	Exactly 1400 kHz. (400 Hz, 30%, AM modulated)	1400 kHz.	Same as step 2.	Adjust the MW antenna trimmer (TC4). (See Note A)
6	MW	Repeat steps 2, 3, 4, and 5 until no further improvement can be made.					
7	LW	Band Coverage	Same as step 2.	Exactly 145 kHz (400 Hz, 30%, AM modulated)	Low end of dial. (maximum capa-city)	Same as step 2.	Adjust the LW oscillation coil (L10).
8	LW		Same as step 2.	Exactly 295 kHz. (400 Hz, 30%, AM modulated)	High end of dial. (minimum capa-city)	Same as step 2.	Adjust the LW oscillation trimmer (TC8).
9	LW	Tracking	Same as step 2.	Exactly 160 kHz. (400 Hz, 30%, AM modulated)	160 kHz.	Same as step 2.	Adjust the LW antenna coil (L7).
10	LW		Same as step 2.	Exactly 260 kHz (400 Hz, 30%, AM modulated)	260 kHz	Same as step 2.	Adjust the LW antenna trimmer (TC5).
11	LW	Repeat steps 7, 8, 9 and 10 until no further improvement can be made.					
12	SW	Band Coverage	Refer to Figure 43.	Exactly 5.85 MHz (400 Hz, 30%, AM modulated)	Low end of dial. (maximum capa-city)	Same as step 2.	Adjust the SW oscillation coil (L8).
13	SW		Same as step 12.	Exactly 18.5 MHz. (400 Hz, 30%, AM modulated)	High end of dial. (minimum capa-city)	Same as step 2.	Adjust the SW oscillation trimmer (TC6).
14	SW	Tracking	Same as step 12.	Exactly 6.5 MHz (400 Hz, 30%, AM modulated)	6.5 MHz	Same as step 2.	Adjust the SW antenna coil (L6).
15	SW		Same as step 12.	Exactly 16 MHz (400 Hz, 30%, AM modulated)	16 MHz	Same as step 2.	Adjust the SW antenna trimmer (TC3).
16	SW	Repeat steps 12, 13, 14 and 15 until no further improvement can be made.					

Note A Check the alignment of the receiver antenna coil by bringing a piece of ferrite (such as a coil slug) near the antenna loop stick, then a piece of brass. If ferrite increases output, loop requires more inductance. If brass increases output, loop requires less inductance. Change loop inductance by sliding the bobbin toward the center of ferrite core to increase inductance, or away to decrease inductance.

AM IF .....MW Switch (SW101 B) : ON
MW RF .....MW Switch (SW101 B) : ON
LW RF .....LW Switch (SW101 A) : ON

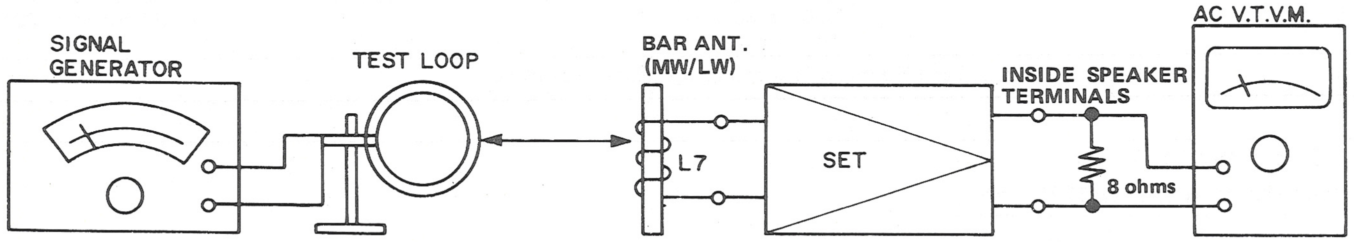


Figure 42 AM IF and MW/LW RF ALIGNMENT EQUIPMENT CONNECTION

SW Switch (SW101C): ON

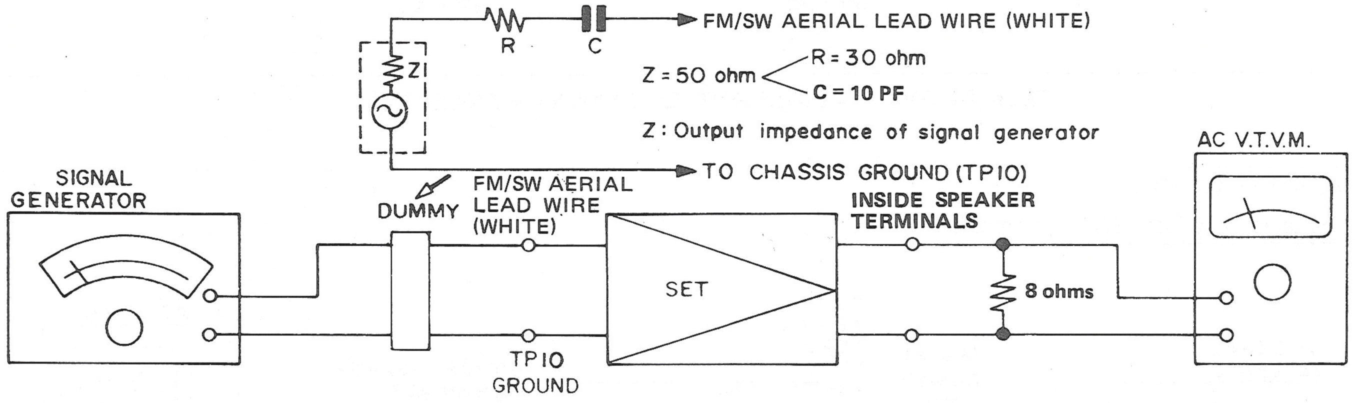


Figure 43 SW RF ALIGNMENT EQUIPMENT CONNECTION

FM ALIGNMENT CHART

(Refer to Figure 50)

STEP	TEST STAGE	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
		CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	IF	Refer to Figure 44.	Exactly 10.7 MHz. (400 Hz, 30%, FM modulated)	High end of dial. (minimum capacity)	Adjust for maximum output.	Adjust the FM IF transformers 1. (T1) 2. (T2) (See Note B)
2	Band Coverage	Refer to Figures 45 and 49.	Exactly 87.1 MHz (400 Hz, 30%, FM modulated)	Low end of dial. (maximum capacity)	Adjust for maximum output.	Adjust the FM oscillation coils. (L3, L4).
3		Same as step 2.	Exactly 108.5 MHz. (400 Hz, 30%, FM modulated)	High end of dial. (minimum capacity)	Same as step 2.	Adjust the FM oscillation trimmer (TC2).
4	Tracking	Same as step 2.	Exactly 88 MHz. (400 Hz, 30%, FM modulated)	88 MHz	Same as step 2.	Adjust the FM RF coils (L1, L2).
5		Same as step 2.	Exactly 108 MHz, (400 Hz, 30%, FM modulated)	108 MHz	Same as step 2.	Adjust the FM RF trimmer (TC1).
6	Repeat steps 2, 3, 4 and 5 until no further improvement can be made.					

FM Switch (SW101D): on
mode selector switch (SW107): mono

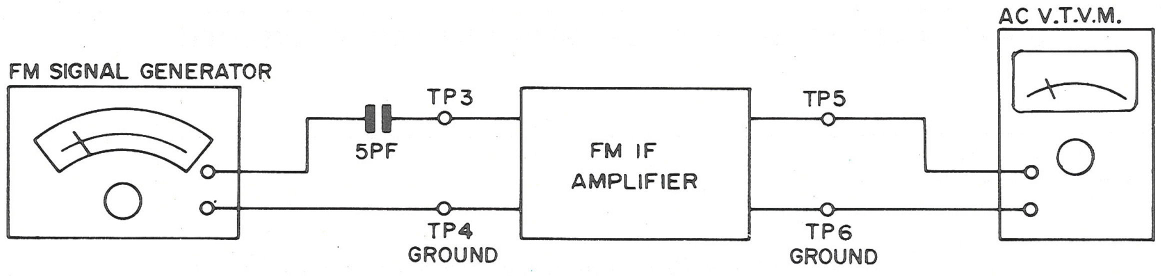

AC V.T.V.M.
FM SIGNAL GENERATOR
TP3
5PF
FM IF AMPLIFIER
TP5
TP4 GROUND
TP6 GROUND

Figure 44 FM IF ALIGNMENT EQUIPMENT CONNECTION

FM Switch (SW101D) : on
mode selector switch (SW107): mono

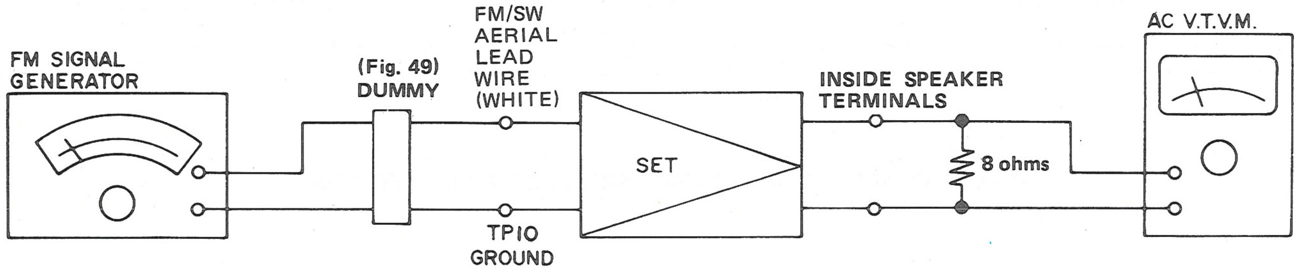
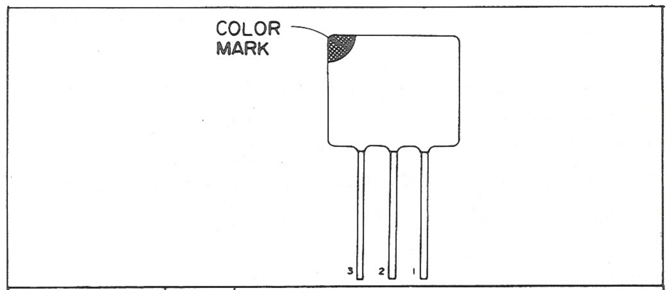

FM SIGNAL GENERATOR
(Fig. 49) DUMMY
FM/SW AERIAL LEAD WIRE (WHITE)
SET
INSIDE SPEAKER TERMINALS
8 ohms
AC V.T.V.M.
TPIO GROUND

Figure 45 FM RF ALIGNMENT EQUIPMENT CONNECTION

Note B (Refer to Figure 46)
There are 5 kinds of ceramic filters (CF101, CF102) available with this unit and they are given color indication as tabulated below to differentiate the central frequency from one to another among them. When using them, be sure to make the two of the same type a pair.

When other ceramic filters than the one (red) having the central frequency of 10.7 MHz are used, note that a marker (10.7 MHz) of FM sweep generator, if used, will be deviated – therefore, adjust the generator by putting off the marker.


COLOR MARK
3
2
1

Central frequency (fo)	D	Black:	10.64 MHz ± 30 kHz
	B	Blue:	10.67 MHz ± 30 kHz
	A	Red:	10.70 MHz ± 30 kHz
	C	Orange:	10.73 MHz ± 30 kHz
	E	White:	10.76 MHz ± 30 kHz

Figure 46

FM MPX ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
	CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	Refer to Figure 47 and 49	Exactly 98 MHz (54 dB) un modulated.	98 MHz	Adjust for 19 ± 0.1 kHz.	Adjust the semi-variable resistor (R34)

FM Switch (SW101D): on
mode selector switch (SW107): stereo

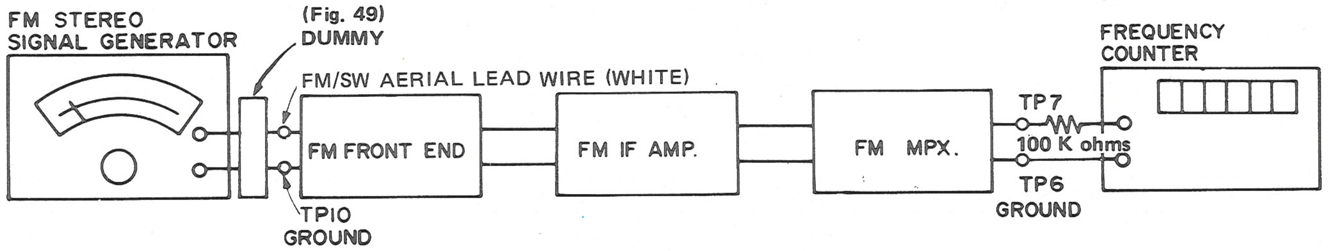

FM STEREO SIGNAL GENERATOR
(Fig. 49) DUMMY
FM/SW AERIAL LEAD WIRE (WHITE)
FM FRONT END
FM IF AMP.
FM MPX.
TP7
100 K ohms
TP6 GROUND
FREQUENCY COUNTER
TPIO GROUND

Figure 47 FM MPX ALIGNMENT EQUIPMENT CONNECTION

FM STEREO INDICATOR LIGHTING LEVEL ALIGNMENT CHART

STEP	SIGNAL GENERATOR		RECEIVER		ADJUSTMENT
	CONNECTION TO RECEIVER	INPUT SIGNAL FREQUENCY	DIAL SETTING	REMARKS	
1	Refer to Figure 48 and 49	Exactly 98 MHz (20 dB) (19 kHz, 10%, FM modulated)	98 MHz	Adjust for the indicator starts lighting.	Adjust the semi-variable resistor (R22)

FM Switch (SW101D):	on
mode selector switch (SW107):	stereo
muting switch (SW106):	on

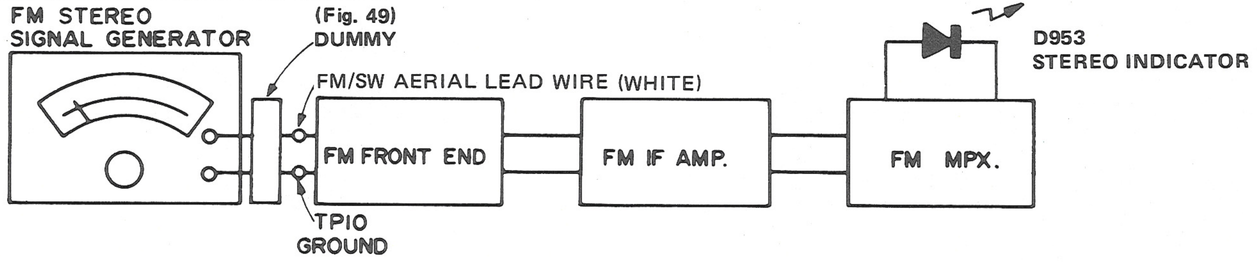
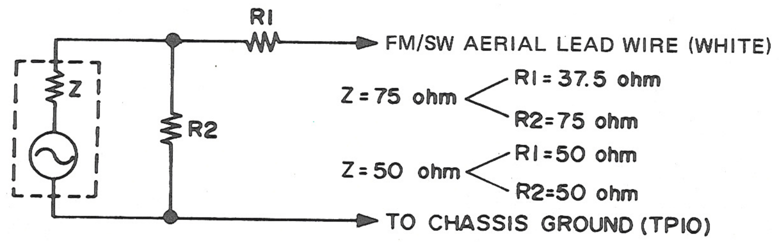

FM STEREO
SIGNAL GENERATOR
(Fig. 49)
DUMMY
FM/SW AERIAL LEAD WIRE (WHITE)
D953
STEREO INDICATOR
FM FRONT END
FM IF AMP.
FM MPX.
TP10
GROUND

Figure 48 FM STEREO INDICATOR LIGHTING LEVEL ALIGNMENT EQUIPMENT CONNECTION


R1
FM/SW AERIAL LEAD WIRE (WHITE)
Z
R2
Z=75 ohm
R1=37.5 ohm
R2=75 ohm
Z=50 ohm
R1=50 ohm
R2=50 ohm
TO CHASSIS GROUND (TP10)

Z: Output impedance of signal generator

Figure 49 FM DUMMY

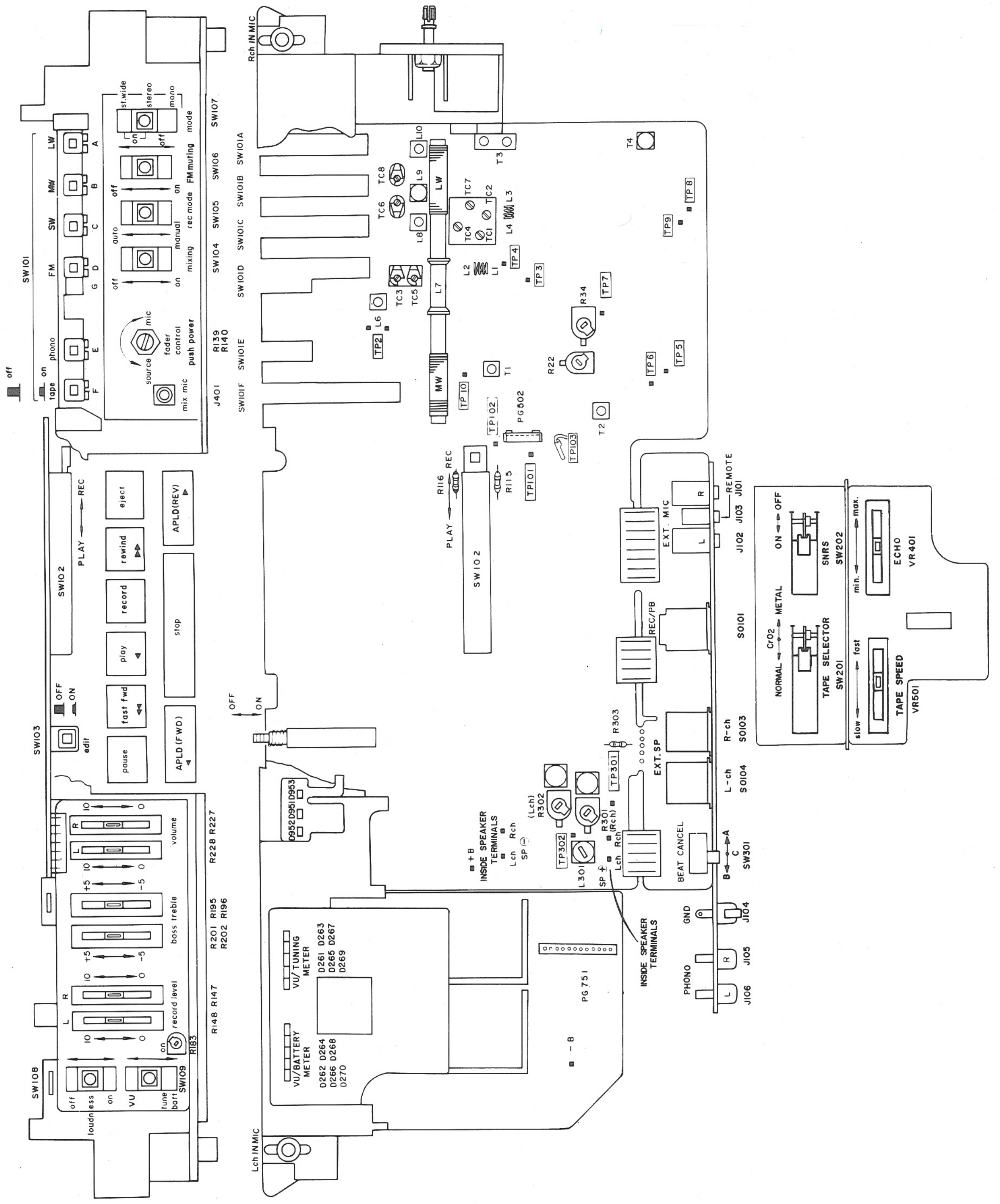
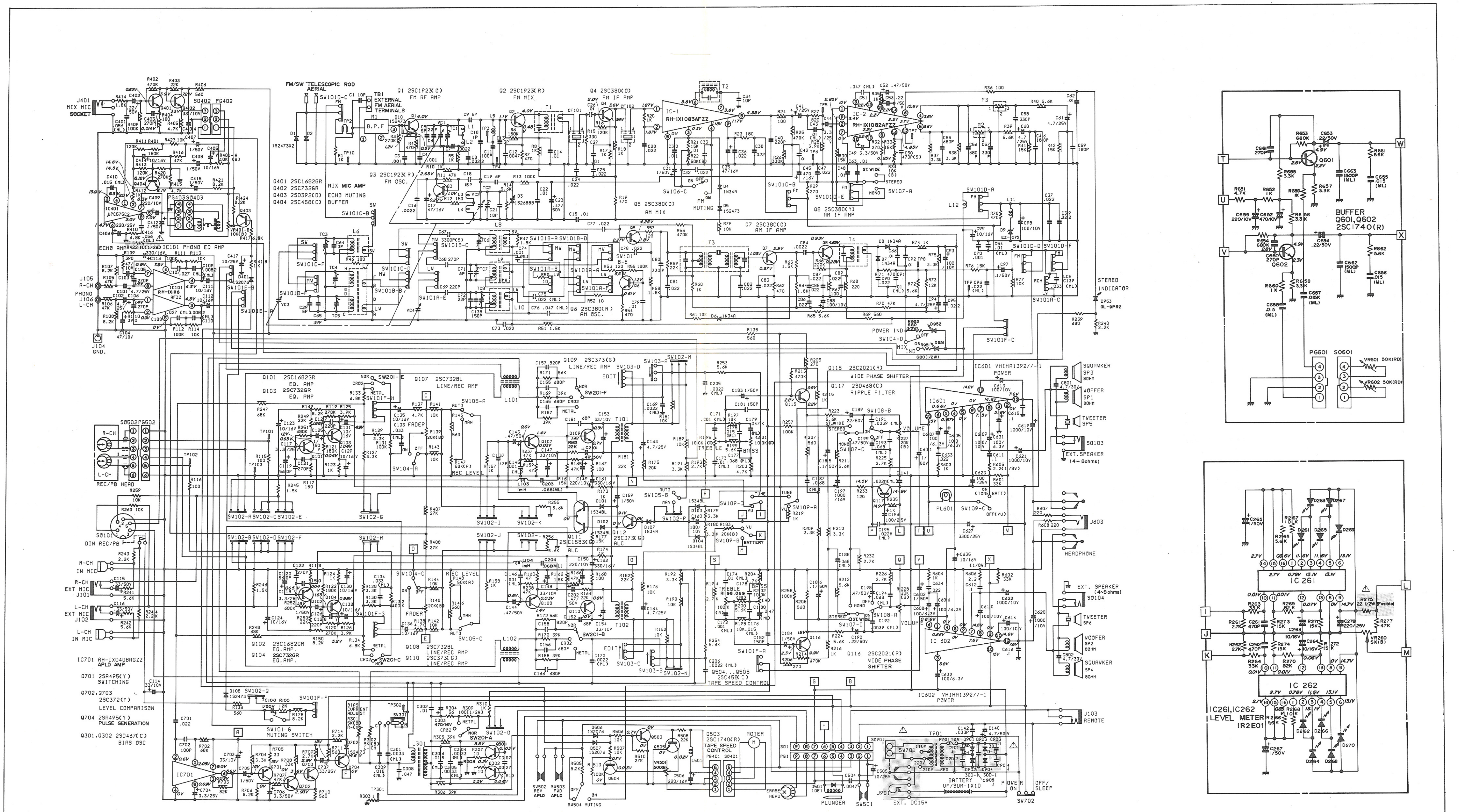

Rch IN MIC
Lch IN MIC
SW101
SW102
SW103
SW104
SW105
SW106
SW107
SW108
SW109
SW201
SW202
SW301
R22
R34
R302
R303
R301
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
TP10
TP101
TP102
TP301
TP302
T1
T2
T3
T4
L2
L3
L4
L6
L7
L8
L9
L10
TC1
TC2
TC3
TC4
TC5
TC6
TC7
TC8
PG502
PG751
J101
J102
J103
J104
J105
J106
J401
S0101
S0103
S0104
VR401
VR501
TAPE SELECTOR
TAPE SPEED
SNRS
ECHO
BEAT CANCEL
EXT.SP
REMOTE
EXT MIC
PHONO
INSIDE SPEAKER TERMINALS
VU/TUNING METER
VU/BATTERY METER

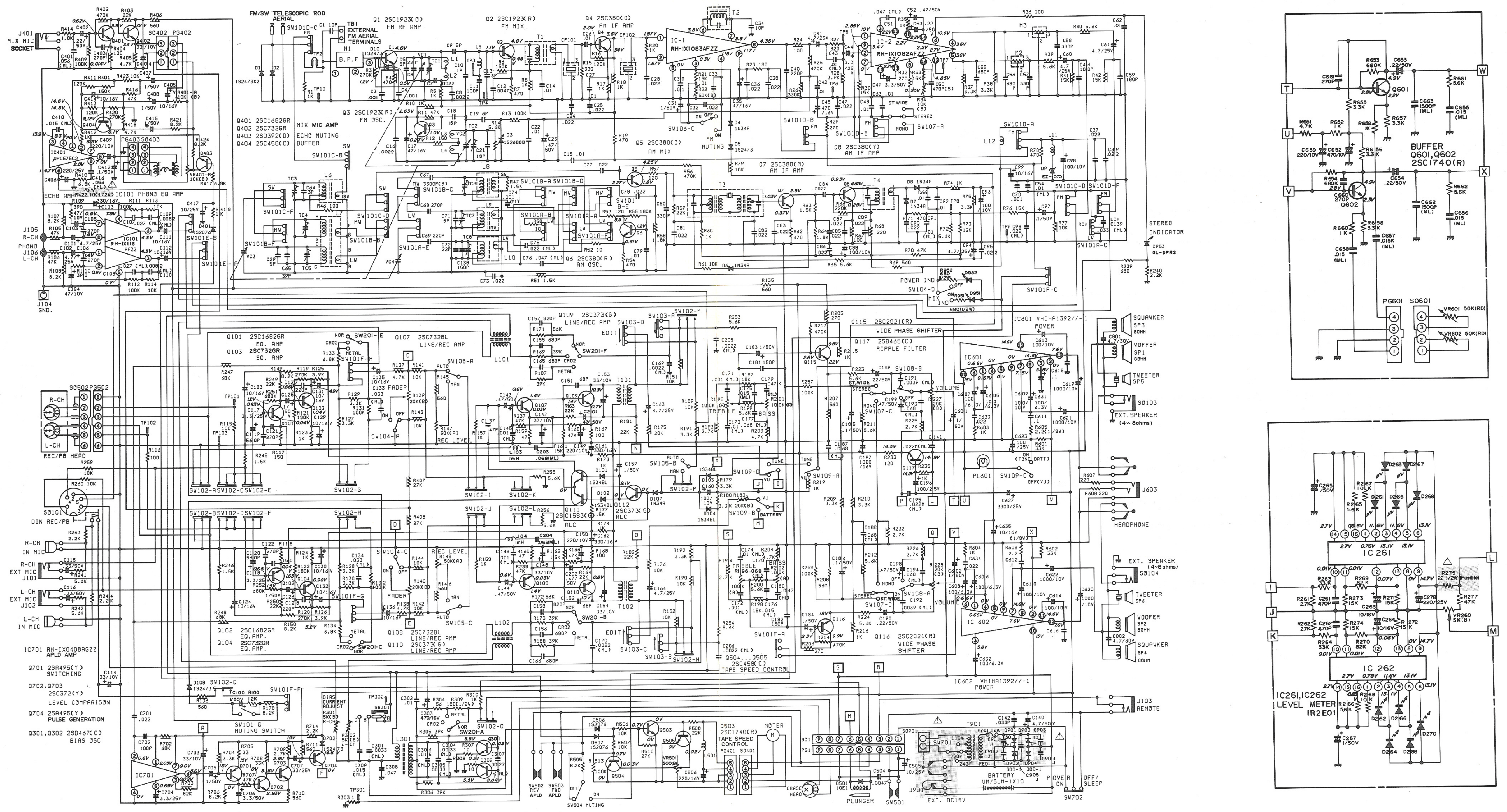
Figure 50 ALIGNMENT POINTS


J401 MIX MIC SOCKET
FM/SW TELESCOPIC ROD AERIAL
TB1 EXTERNAL FM AERIAL TERMINALS
Q1 2SC1923(O) FM RF AMP
Q2 2SC1923(R) FM MIX
Q4 2SC380(O) FM IF AMP
IC-1 RH-IX1083AFZZ
IC-2 RH-IX1082AFZZ
Q3 2SC1923(R) FM OSC.
Q5 2SC380(O) AM MIX
Q7 2SC380(O) AM IF AMP
Q8 2SC380(Y) AM IF AMP
Q6 2SC380(O) AM OSC.
Q401 2SC1682GR
Q402 2SC732GR
Q403 2SD392(D)
Q404 2SC458(C)
MIX MIC AMP
ECHO MUTING
ECHO AMP
BUFFER
IC101 PHONO EQ AMP
J105 R-CH PHONO
J106 L-CH
J104 GND.
STEREO INDICATOR
POWER IND
Q101 2SC1682GR EQ. AMP
Q103 2SC732GR EQ. AMP
Q107 2SC732BL LINE/REC AMP
Q109 2SC373(G) LINE/REC AMP
Q115 2SC2021(R) WIDE PHASE SHIFTER
Q117 2SD468(C) RIPPLE FILTER
IC601 VHIHA1392//-1 POWER
IC602 VHIHA1392//-1 POWER
Q116 2SC2021(R) WIDE PHASE SHIFTER
S0502 PG502
REC/PB HEAD
S0101 DIN REC/PB
R-CH IN MIC
R-CH EXT MIC J101
L-CH EXT MIC J102
L-CH IN MIC
Q102 2SC1682GR EQ.AMP.
Q104 2SC732GR EQ.AMP.
Q108 2SC732BL LINE/REC AMP
Q110 2SC373(G) LINE/REC AMP
Q111 2SC1583(C) ALC
Q112 2SC373(G) ALC
Q503 2SC1740(R) TAPE SPEED CONTROL
Q504...Q505 2SC458(C) TAPE SPEED CONTROL
IC701 RH-IX0408AGZZ APLD AMP
Q701 2SA495(Y) SWITCHING
Q702,Q703 2SC372(Y) LEVEL COMPARISON
Q704 2SA495(Y) PULSE GENERATION
Q301,Q302 2SD467(C) BIAS OSC
SW101 G MUTING SWITCH
SW502 REV APLD
SW503 FWD APLD
SW504 MUTING
MOTOR
ERASE HEAD
PLUNGER
SW501
EXT. DC15V
POWER ON
OFF/SLEEP
SW702
BATTERY UM/SUM-1X10
SQUAWKER SP3 8OHM
WOFFER SP1 8OHM
TWEETER SP5
S0103 EXT.SPEAKER (4~8ohms)
J603 HEADPHONE
EXT. SPEAKER (4~8ohms) S0104
TWEETER SP6
WOOFER SP2 8OHM
SQUAWKER SP4 8OHM
J103 REMOTE
BUFFER Q601,Q602 2SC1740(R)
PG601 S0601
VR601 50K(RD)
VR602 50K(RD)
IC 261
IC 262
IC261,IC262 LEVEL METER IR2E01

(Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.)

Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

Figure 51 SCHEMATIC DIAGRAM (TUNER AND AUDIO SECTION)


FM/SW TELESCOPIC ROD AERIAL
Q1 2SC1923(O) FM RF AMP
Q2 2SC1923(R) FM MIX
Q4 2SC380(O) FM IF AMP
Q3 2SC1923(R) FM OSC.
Q5 2SC380(O) AM MIX
Q6 2SC380(R) AM OSC.
Q7 2SC380(O) AM IF AMP
Q8 2SC380(Y) AM IF AMP
IC-1 RH-IX1083AFZZ
IC-2 RH-IX1082AFZZ
J401 MIX MIC SOCKET
Q401 2SC1682GR
Q402 2SC732GR
Q403 2SD392(D)
Q404 2SC458(C)
MIX MIC AMP
ECHO MUTING
BUFFER
IC401 μPC575C2
ECHO AMP
IC101 PHONO EQ AMP
J105 R-CH PHONO
J106 L-CH
J104 GND.
STEREO INDICATOR
POWER IND
Q101 2SC1682GR EQ. AMP
Q103 2SC732GR EQ. AMP
Q107 2SC732BL LINE/REC AMP
Q109 2SC373(G) LINE/REC AMP
Q111 2SC1583(G) ALC
Q112 2SC373(G) ALC
Q102 2SC1682GR EQ.AMP.
Q104 2SC732GR EQ.AMP.
Q108 2SC732BL LINE/REC AMP
Q110 2SC373(G) LINE/REC AMP
Q115 2SC2021(R) WIDE PHASE SHIFTER
Q117 2SD468(C) RIPPLE FILTER
Q116 2SC2021(R) WIDE PHASE SHIFTER
IC601 VHIHA1392//-1 POWER
IC602 VHIHA1392//-1 POWER
Q504...Q505 2SC458(C) TAPE SPEED CONTROL
Q503 2SC1740(R) TAPE SPEED CONTROL
S0502 PG502
REC/PB HEAD
S0101 DIN REC/PB
R-CH IN MIC
R-CH EXT MIC J101
L-CH EXT MIC J102
L-CH IN MIC
IC701 RH-IX0408AGZZ APLD AMP
Q701 2SA495(Y) SWITCHING
Q702,Q703 2SC372(Y) LEVEL COMPARISON
Q704 2SA495(Y) PULSE GENERATION
Q301,Q302 2SD467(C) BIAS OSC
SW101 G MUTING SWITCH
SQUAWKER SP3
WOOFER SP1
TWEETER SP5
EXT. SPEAKER (4~8ohms)
HEADPHONE
J603
EXT. SPEAKER (4~8ohms) S0104
TWEETER SP6
WOOFER SP2
SQUAWKER SP4
J103 REMOTE
MOTOR
ERASE HEAD
PLUNGER
SW501
J901
EXT. DC15V
BATTERY UM/SUM-1X10
T901
POWER ON
OFF/SLEEP
SW702
SW502 REV APLD
SW503 FWD APLD
SW504 MUTING
BUFFER Q601,Q602 2SC1740(R)
PG601 S0601
VR601 50K(RD)
VR602 50K(RD)
IC 261
IC 262
IC261,IC262 LEVEL METER IR2E01

(Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.)

Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

Figure 51 SCHEMATIC DIAGRAM (TUNER AND AUDIO SECTION)

NOTES ON SCHEMATIC DIAGRAM

1. Frequency range: FM; 87.6 to 108MHz
   SW; 5.95 to 18MHz
   MW; 525 to 1620kHz
   LW; 150 to 285kHz
2. IF: FM; 10.7MHz
   SW/MW/LW; 455kHz
3. SW101: Function selector switch
   SW101 (A ~ F) ... Function selector switch ("FM" position)
   SW101G ... Muting switch ("OFF" position)
4. SW102 (A ~ Q): Record/Playback switch (P.B. position)
5. SW103 (A ~ D): Editing switch (OFF position)
6. SW104 (A ~ D): Mixing switch ("off" position)
7. SW105 (A ~ D): Recording mode selector switch ("auto" position)
8. SW106 (A ~ D): FM muting switch ("off" position)
9. SW107(A ~ D): Mode selector switch ("stereo" position)
10. SW108 (A, B): Loudness switch ("on" position)
11. SW109 (A ~ D): Meter selector/Dial Light switch ("VU"/off position)
12. SW201 (A ~ F): Tape selector switch ("normal" position)
13. SW202: SNRS switch ("ON" position)
14. SW301: Beat cancel switch ("A" position)
15. SW501: Motor switch (OFF position)
16. SW502: Forward APLD switch (OFF position)
17. SW503: Reverse APLD switch (OFF position)
18. SW701: AC supply voltage selector switch ("220V" position)
19. SW702: Power switch (OFF/sleep position)
20. Unless otherwise specified all resistance in ohms. K = 1000 ohms.
21. Unless otherwise specified all capacitance in microfarads.
    p = micro-microfarads.
22. -ww- : Printed resistor
23. (ML): Mylar film capacitor
24. The voltages are measured with VTVM under no signal input and in the following mode.

IC1, IC2, IC101, Q1, Q2, Q3 and Q4: FM mode
Q5, Q6, Q7 and Q8: AM mode
IC261, IC262, IC401, IC551, IC552, IC601, IC602, Q101, Q102, Q103, Q104, Q115, Q116, Q117, Q403, Q404, Q503, Q504, Q505, Q551, Q552, Q601 and Q602 } : Playback mode
Q107, Q108, Q109, Q110, Q111, Q112, Q301, Q302, Q401, Q402. } : Record mode
IC701, IC751, Q701, Q702, Q703, Q704, Q751, Q752, Q753, Q754, Q755, Q758 and Q759 } : APLD mode

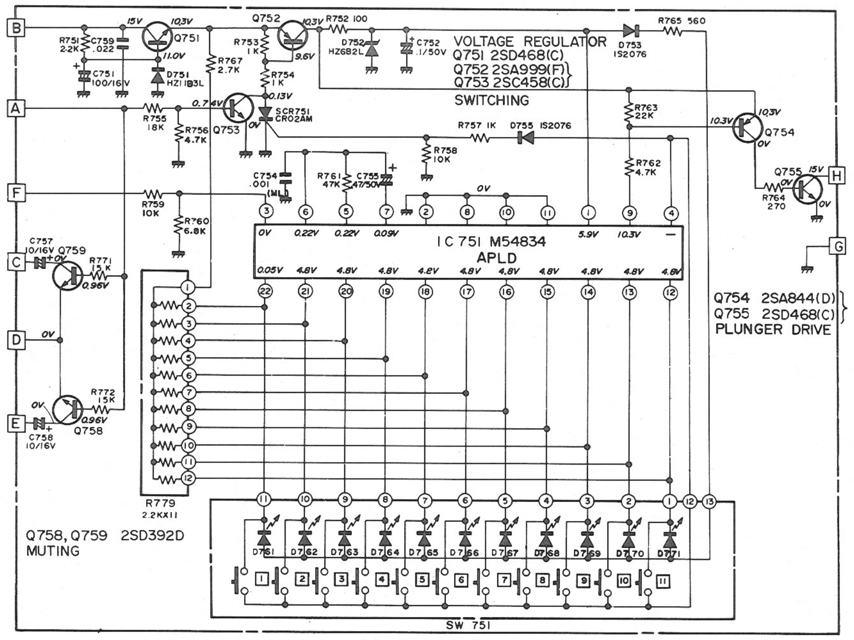

VOLTAGE REGULATOR
Q751 2SD468(C)
Q752 2SA999(F)
Q753 2SC458(C)
SWITCHING
IC 751 M54834
APLD
Q754 2SA844(D)
Q755 2SD468(C)
PLUNGER DRIVE
Q758, Q759 2SD392D
MUTING
SW 751

Figure 52 SCHEMATIC DIAGRAM (APLD SECTION)

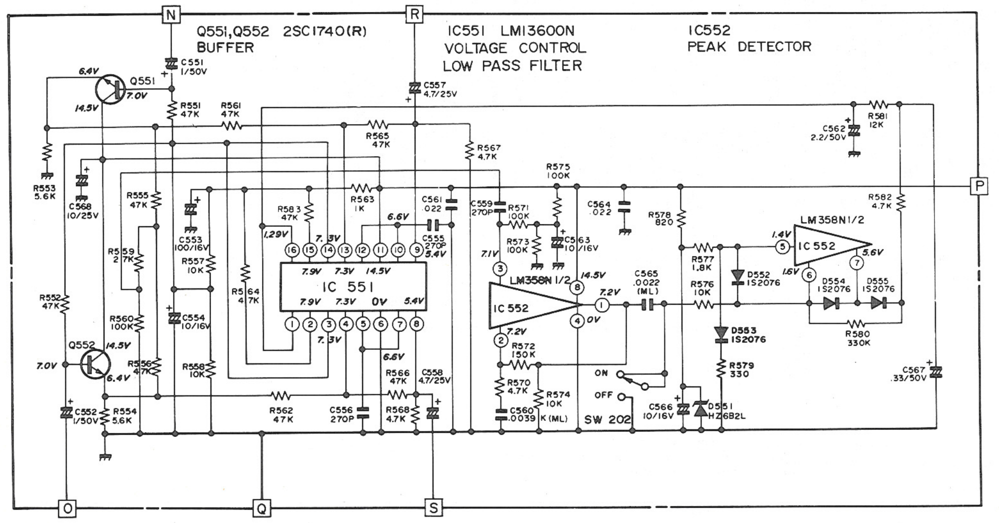

Q551, Q552 2SC1740(R)
BUFFER
IC551 LM13600N
VOLTAGE CONTROL
LOW PASS FILTER
IC552
PEAK DETECTOR
IC 551
IC 552
LM358N 1/2
SW 202

Figure 53 SCHEMATIC DIAGRAM (SNRS SECTION)

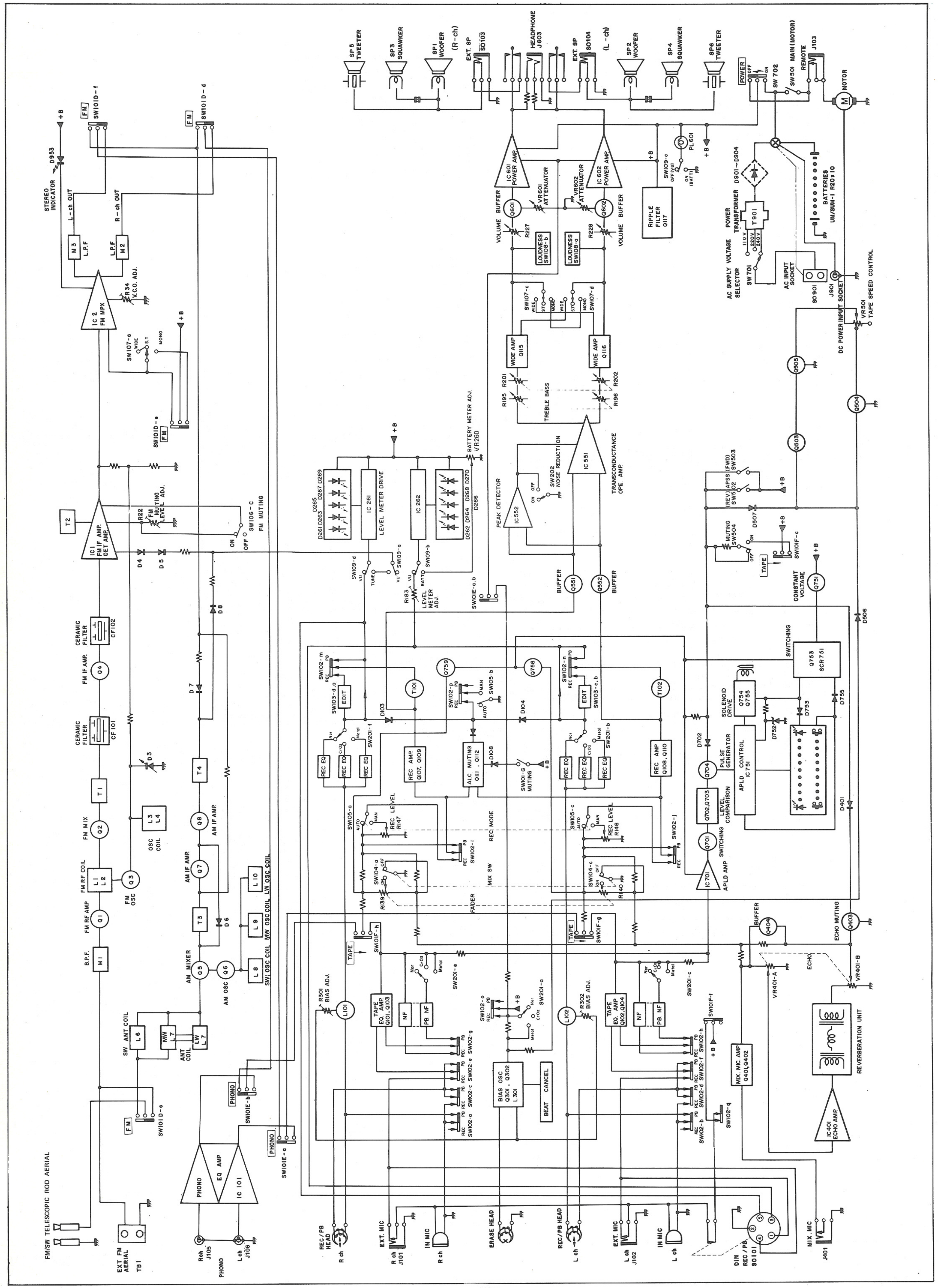


Figure 54 BLOCK DIAGRAM

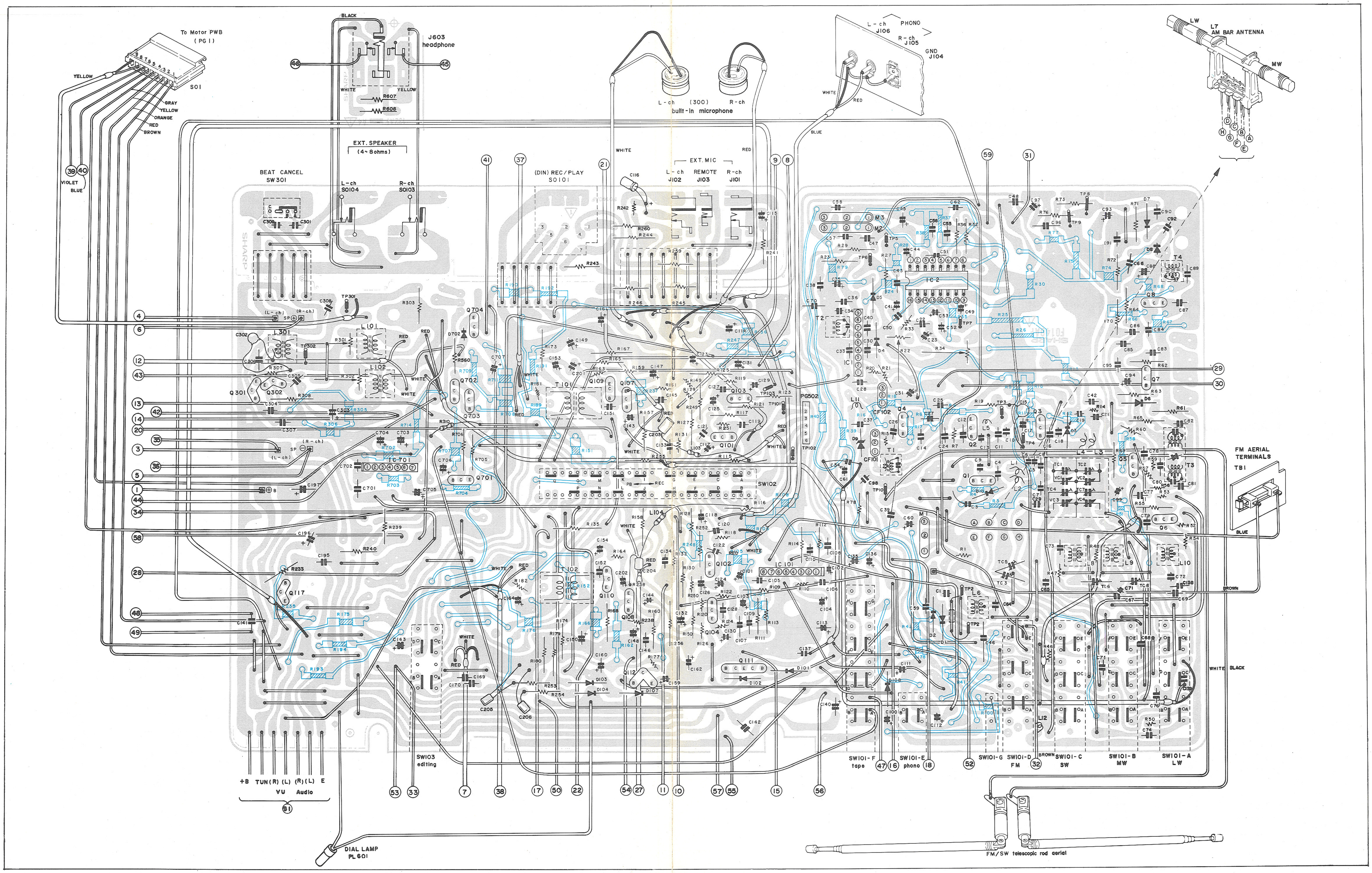

To Motor PWB
(PG1)
S01
YELLOW
GRAY
YELLOW
ORANGE
RED
BROWN
VIOLET
BLUE
BLACK
J603
headphone
WHITE
YELLOW
R607
R608
EXT. SPEAKER
(4~8ohms)
L-ch
S0104
R-ch
S0103
BEAT CANCEL
SW301
L-ch
(300)
R-ch
built-in microphone
WHITE
RED
EXT. MIC
L-ch
J102
REMOTE
J103
R-ch
J101
(DIN) REC/PLAY
S0101
L-ch
J106
PHONO
R-ch
J105
GND
J104
WHITE
RED
BLUE
LW
L7
AM BAR ANTENNA
MW
IC2
IC101
IC701
SW102
PG502
FM AERIAL TERMINALS
TB1
BLUE
BROWN
WHITE
BLACK
+B
TUN(R)
(L)
(R)(L)
E
VU
Audio
SW103
editing
SW101-F
tape
SW101-E
phono
SW101-G
SW101-D
FM
SW101-C
SW
SW101-B
MW
SW101-A
LW
DIAL LAMP
PL601
FM/SW telescopic rod aerial

Figure 55 WIRING SIDE OF P.W. BOARD

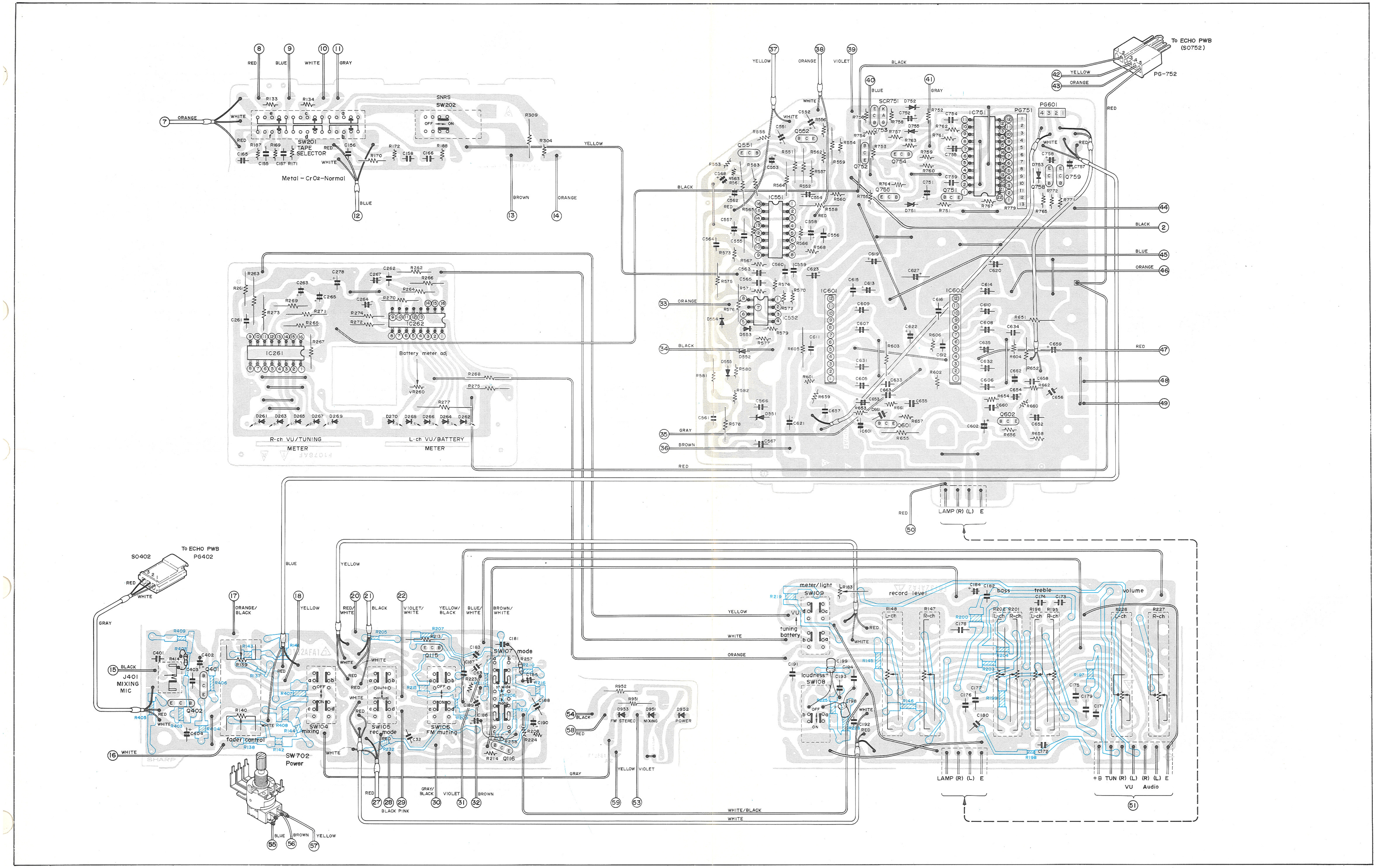

To ECHO PWB
(S0752)
PG-752
SNRS
SW202
OFF
ON
SW201
TAPE
SELECTOR
Metal - CrO2 - Normal
IC551
IC552
IC601
IC602
IC751
PG751
PG601
SCR751
Q551
Q552
Q601
Q602
Q751
Q752
Q753
Q754
Q755
Q758
Q759
IC261
IC262
Battery meter adj
VR260
R-ch VU/TUNING
METER
L-ch VU/BATTERY
METER
LAMP (R) (L) E
To ECHO PWB
PG402
S0402
J401
MIXING
MIC
Q401
Q402
fader control
SW702
Power
SW104
mixing
SW105
rec mode
SW106
FM muting
SW107
mode
Q115
Q116
D953
FM STEREO
D951
MIXING
D952
POWER
meter/light
SW109
VU
tuning
battery
loudness
SW108
record level
bass
treble
volume
L-ch
R-ch
+B TUN (R) (L) (R) (L) E
VU Audio
RED
BLUE
WHITE
GRAY
ORANGE
YELLOW
BROWN
BLACK
VIOLET
WHITE/BLACK
BLACK PINK
GRAY/BLACK
ORANGE/BLACK
RED/WHITE
VIOLET/WHITE
YELLOW/BLACK
BLUE/WHITE
BROWN/WHITE
SHARP

Figure 56 WIRING SIDE OF P.W. BOARD

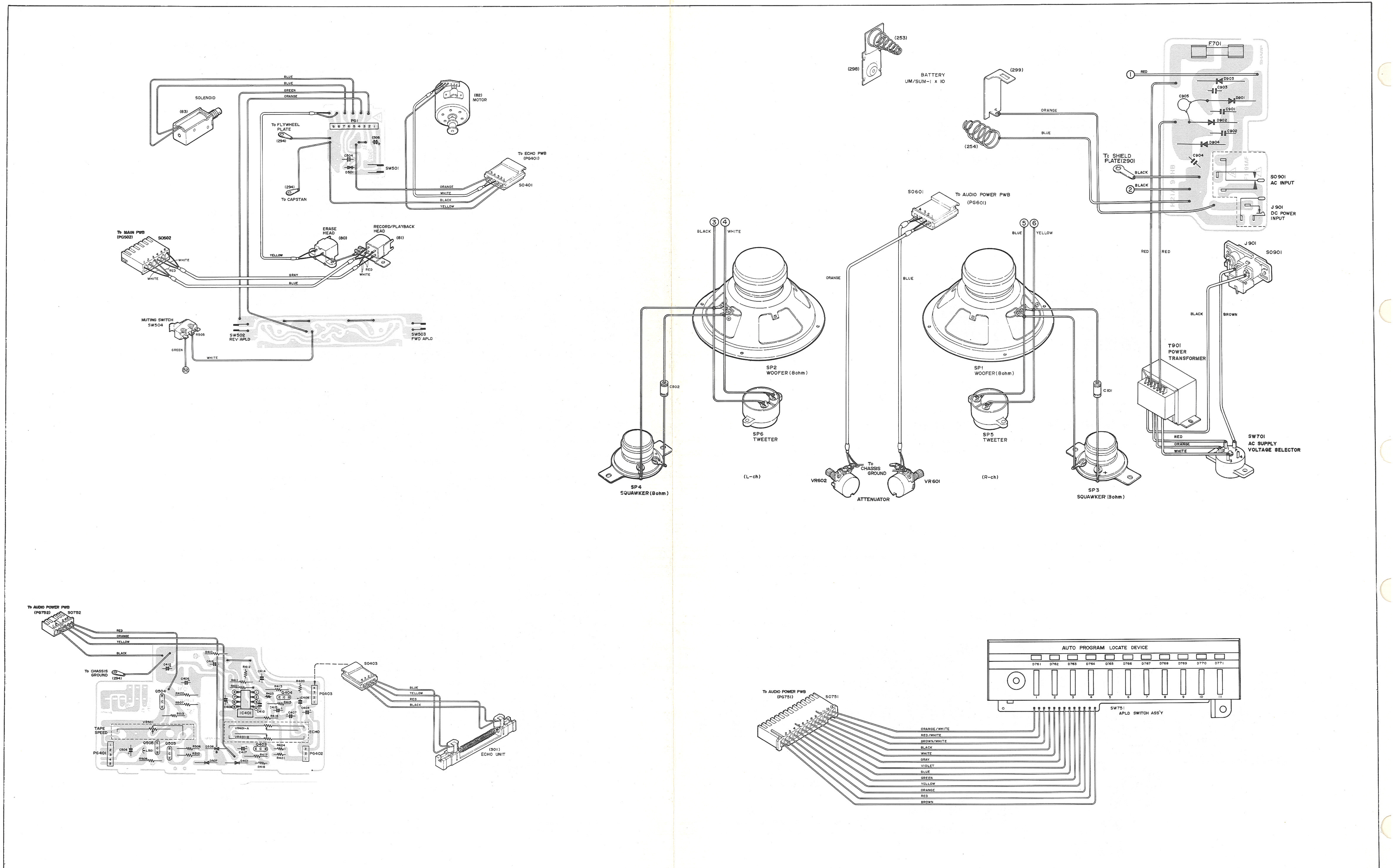

SOLENOID
(83)
BLUE
BLUE
GREEN
ORANGE
PG1
9 8 7 6 5 4 3 2 1
To FLYWHEEL PLATE
(294)
C505
C504
D501
SW501
(82) MOTOR
To ECHO PWB (PG401)
SO401
ORANGE
WHITE
BLACK
YELLOW
(294)
To CAPSTAN
To MAIN PWB (PG502)
SO502
ERASE HEAD
(80)
RECORD/PLAYBACK HEAD
(81)
YELLOW
WHITE
RED
WHITE
GRAY
BLUE
RED
WHITE
MUTING SWITCH SW504
R505
GREEN
WHITE
52
SW502 REV APLD
SW503 FWD APLD
(253)
(298)
BATTERY UM/SUM-1 x 10
(299)
(254)
ORANGE
BLUE
F701
① RED
D903
C903
C905
D901
C901
D902
C902
D904
C904
To SHIELD PLATE(290)
BLACK
② BLACK
SO901 AC INPUT
J901 DC POWER INPUT
SO601
To AUDIO POWER PWB (PG601)
③ ④
BLACK
WHITE
⑤ ⑥
BLUE
YELLOW
ORANGE
BLUE
RED
RED
J901
SO901
BLACK
BROWN
SP2 WOOFER (8ohm)
SP1 WOOFER (8ohm)
C802
C801
T901 POWER TRANSFORMER
SP6 TWEETER
SP5 TWEETER
RED
ORANGE
WHITE
SW701 AC SUPPLY VOLTAGE SELECTOR
(L-ch)
(R-ch)
To CHASSIS GROUND
VR602
VR601
ATTENUATOR
SP4 SQUAWKER (8ohm)
SP3 SQUAWKER (8ohm)
To AUDIO POWER PWB (PG752)
SO752
RED
ORANGE
YELLOW
BLACK
To CHASSIS GROUND
(294)
R410
C416
C412
R412
C414
R411
R401
C406
R413
R420
Q504
R422
R423
Q404
C408
PG403
R507
C409
R415
IC401
C410
C415
C405
R513
R416
C407
VR501
TAPE SPEED
VR401-A
VR401-B
ECHO
Q505
Q503
Q403
R424
PG401
C506
L501
R506
D506
C417
R421
PG402
R510
R417
R508
D507
D401
R418
SO403
BLUE
YELLOW
RED
BLACK
(301) ECHO UNIT
AUTO PROGRAM LOCATE DEVICE
D761
D762
D763
D764
D765
D766
D767
D768
D769
D770
D771
1 2 3 4 5 6 7 8 9 10 11
To AUDIO POWER PWB (PG751)
SO751
SW751 APLD SWITCH ASS'Y
ORANGE/WHITE
RED/WHITE
BROWN/WHITE
BLACK
WHITE
GRAY
VIOLET
BLUE
GREEN
YELLOW
ORANGE
RED
BROWN

Figure 57 WIRING SIDE OF P.W. BOARD

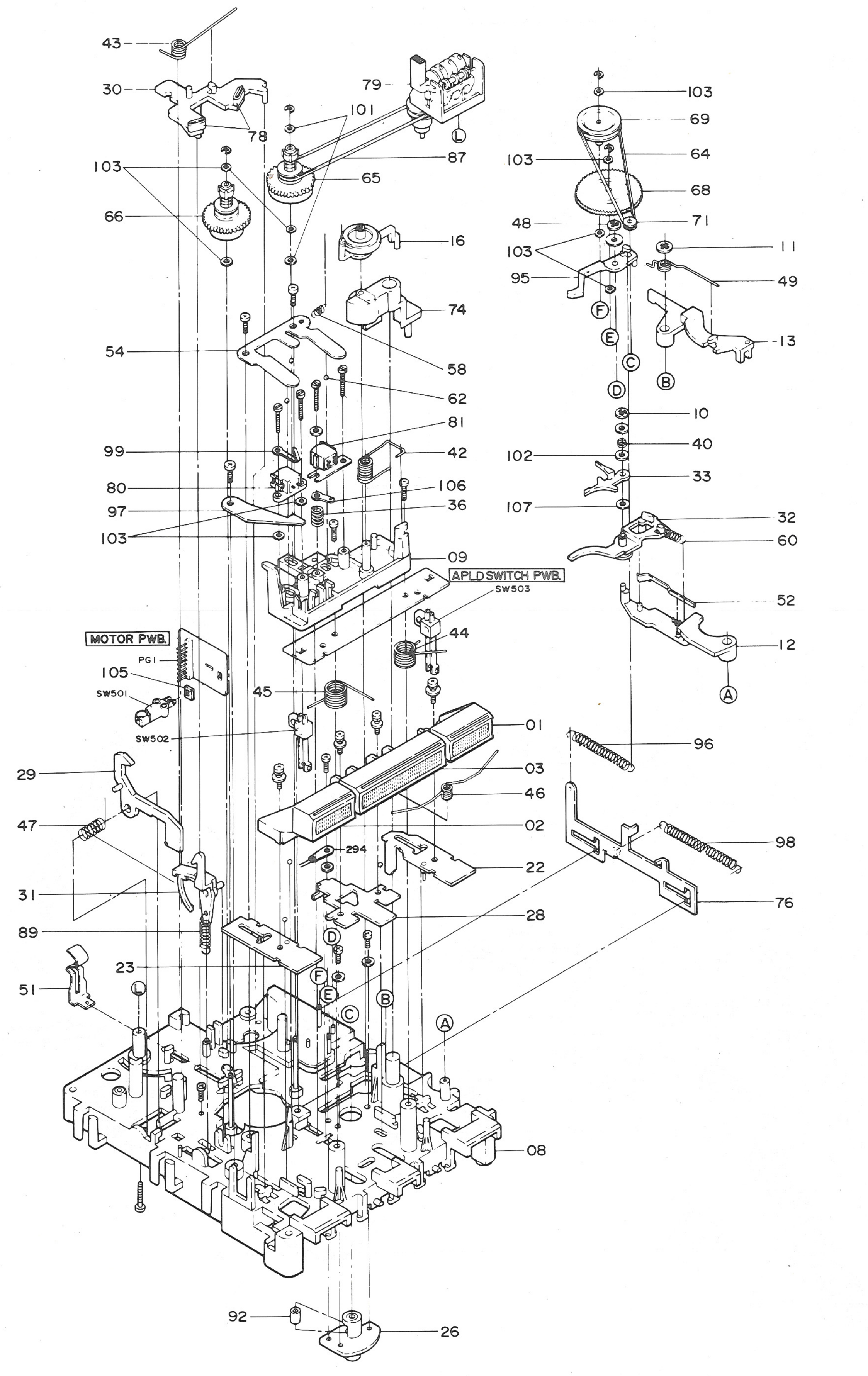

43
30
78
79
101
103
69
64
68
71
87
65
66
16
48
11
95
49
74
13
54
58
62
81
42
99
10
40
102
33
80
106
97
36
107
32
60
09
APLD SWITCH PWB.
SW503
52
44
MOTOR PWB.
PG1
105
SW501
45
12
01
SW502
96
29
03
46
47
02
294
98
22
31
28
76
89
23
51
08
92
26
A
B
C
D
E
F
L

Figure 58 MECHANISM EXPLODED TOP VIEW

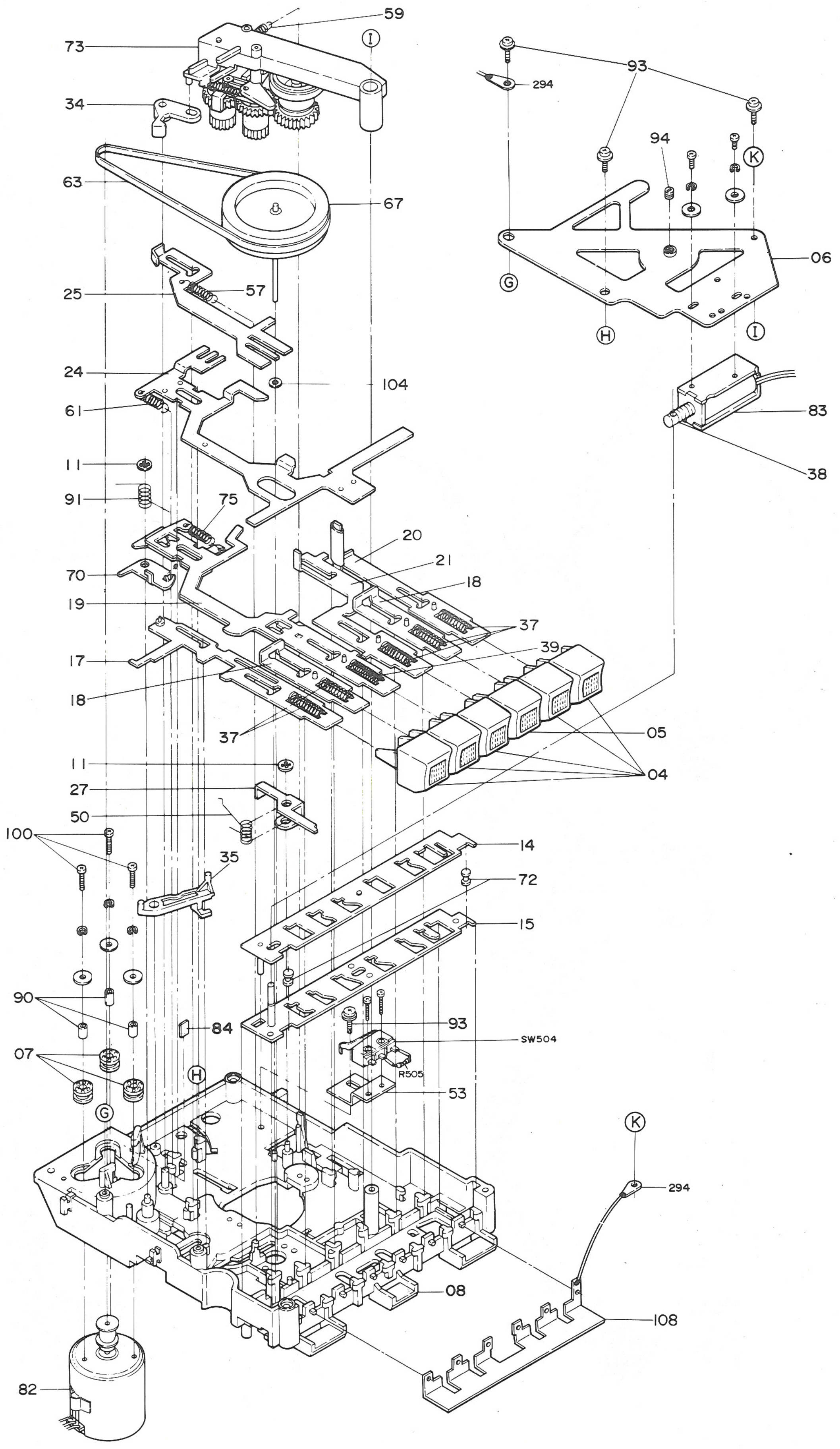

59
73
34
93
294
94
63
67
06
25
57
24
104
61
83
38
11
91
75
20
21
70
18
19
37
39
17
05
04
27
50
100
35
14
72
15
90
84
SW504
07
R505
53
08
108
82
G
H
I
K

Figure 59 MECHANISM EXPLODED BOTTOM VIEW

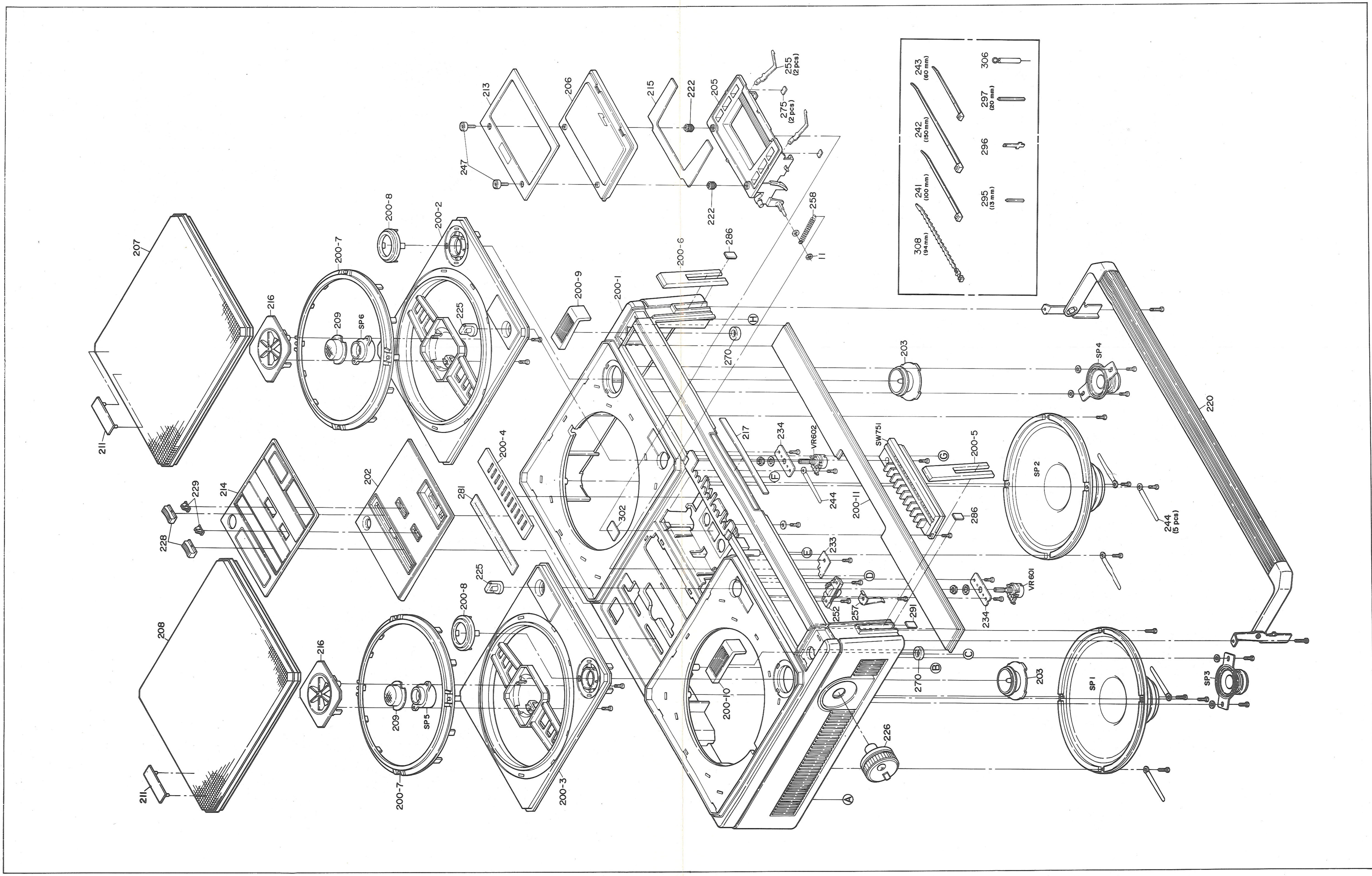

207
211
216
209
SP6
200-7
200-8
200-2
213
206
215
222
205
255 (2 pcs)
275 (2 pcs)
247
222
258
11
286
200-6
200-9
200-1
225
H
270
203
SP4
220
229
214
228
202
281
200-4
302
217
234
VR602
F
244
200-11
SW751
G
200-5
SP2
286
244 (5 pcs)
E
233
D
291
257
252
234
VR601
208
216
200-8
225
209
SP5
200-7
200-3
200-10
270
B
C
203
SP1
SP3
226
A
243 (60 mm)
242 (150 mm)
241 (100 mm)
308 (94 mm)
306
297 (20 mm)
296
295 (13 mm)

Figure 60 CABINET EXPLODED VIEW (FRONT CABINET)

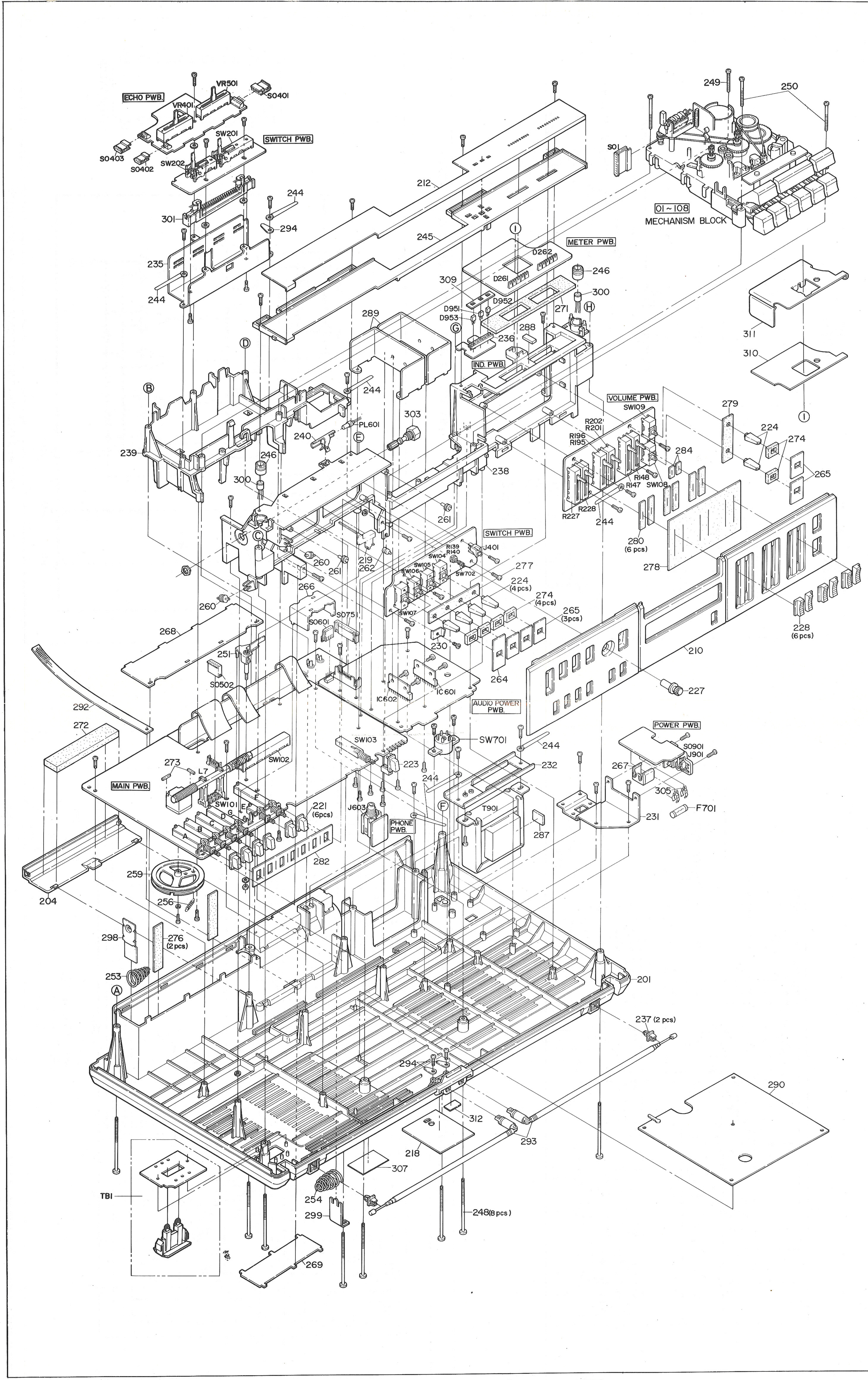

ECHO PWB.
VR401
VR501
S0401
S0403
S0402
SW202
SW201
SWITCH PWB.
244
294
301
235
244
212
245
249
250
S01
01 ~ 108
MECHANISM BLOCK
METER PWB.
D262
D261
246
300
309
D951
D953
D952
271
288
236
IND. PWB.
289
311
310
279
224
274
265
VOLUME PWB.
SW109
R202
R201
R196
R195
284
R148
R147
SW108
R228
R227
244
280
(6 pcs)
278
228
(6 pcs)
B
D
G
H
I
E
C
F
A
239
244
303
PL601
240
246
300
238
261
SWITCH PWB.
J401
R139
R140
SW104
SW105
SW106
SW702
SW107
277
224
(4 pcs)
274
(4 pcs)
265
(3 pcs)
260
261
219
262
266
S0601
S075
260
268
230
264
210
227
251
S0502
IC602
IC601
AUDIO POWER
PWB.
SW701
292
272
273
L7
SW102
SW103
223
244
232
244
MAIN PWB.
SW101
221
(6pcs)
J603
PHONE
PWB.
T901
287
POWER PWB.
S0901
J901
267
305
F701
231
204
259
256
282
298
276
(2 pcs)
253
201
237 (2 pcs)
294
290
312
293
218
307
TB1
254
299
248 (8 pcs)
269

Figure 61 CABINET EXPLODED VIEW (BACK CABINET)

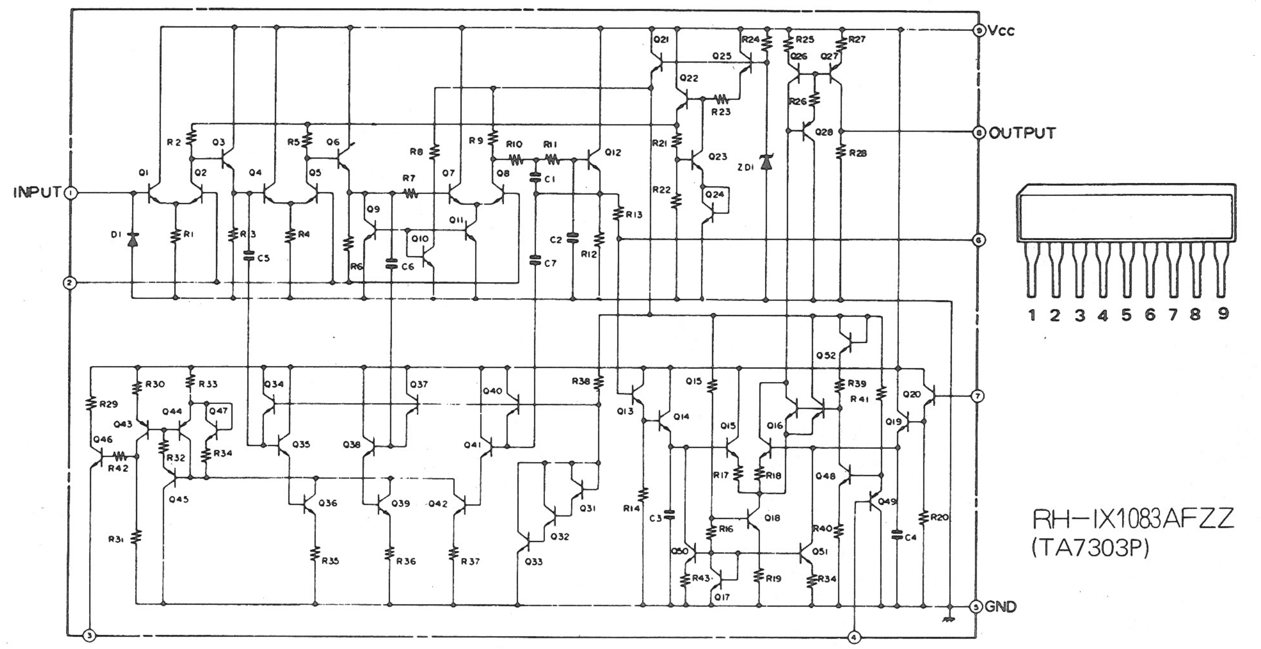

Vcc
OUTPUT
INPUT
GND
1 2 3 4 5 6 7 8 9
RH-IX1083AFZZ
(TA7303P)

Figure 62 EQUIVALENT CIRCUIT OF IC (IC1)

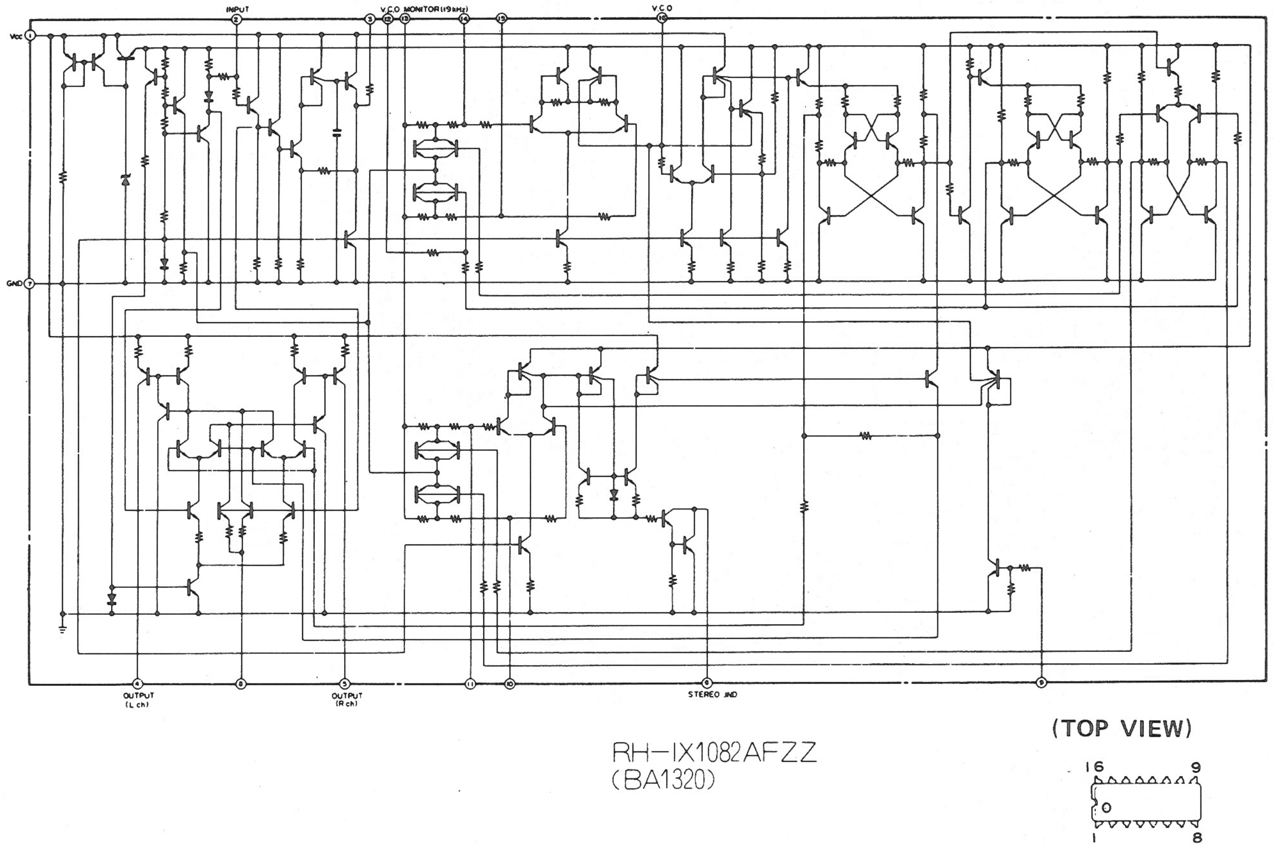

INPUT
V.C.O MONITOR
V.C.O
Vcc
GND
OUTPUT (L ch)
OUTPUT (R ch)
STEREO IND
RH-IX1082AFZZ
(BA1320)
(TOP VIEW)
16
9
1
8

Figure 63 EQUIVALENT CIRCUIT OF IC (IC2)

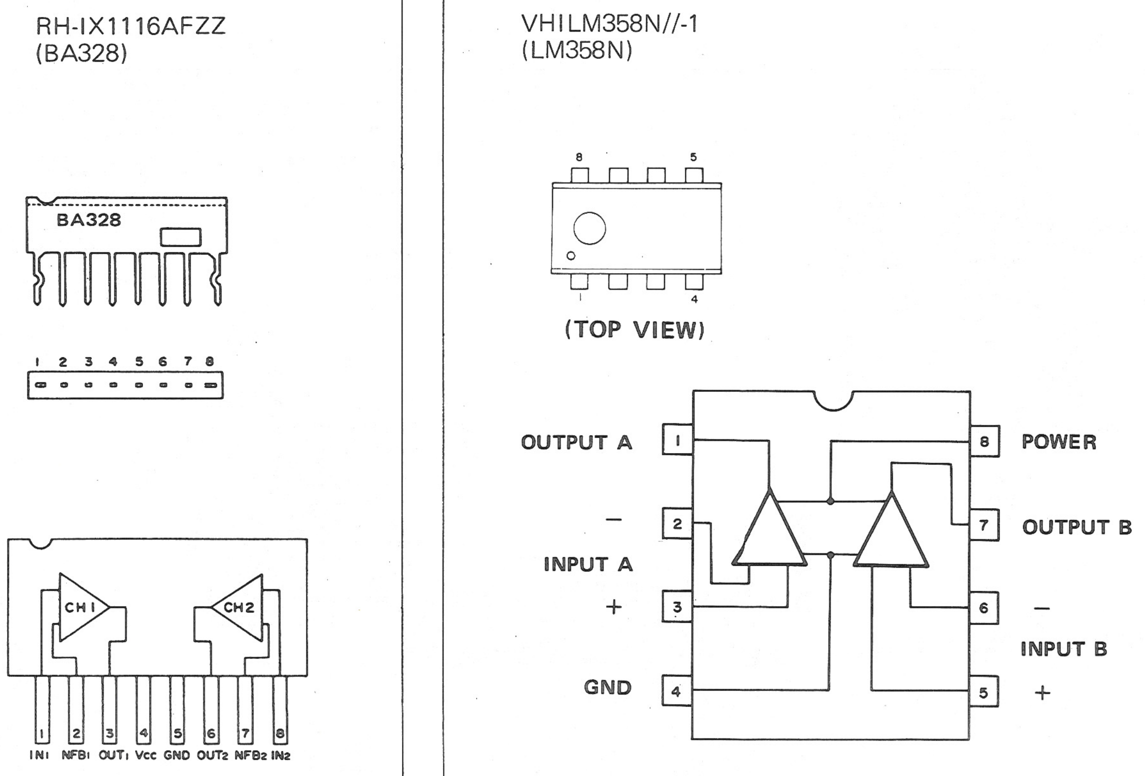

RH-IX1116AFZZ
(BA328)
BA328
1 2 3 4 5 6 7 8
CH1
CH2
IN1 NFB1 OUT1 Vcc GND OUT2 NFB2 IN2
VHILM358N//-1
(LM358N)
8
5
1
4
(TOP VIEW)
OUTPUT A
–
INPUT A
+
GND
POWER
OUTPUT B
–
INPUT B
+

Figure 64 EQUIVALENT CIRCUIT OF IC (IC101, IC552)

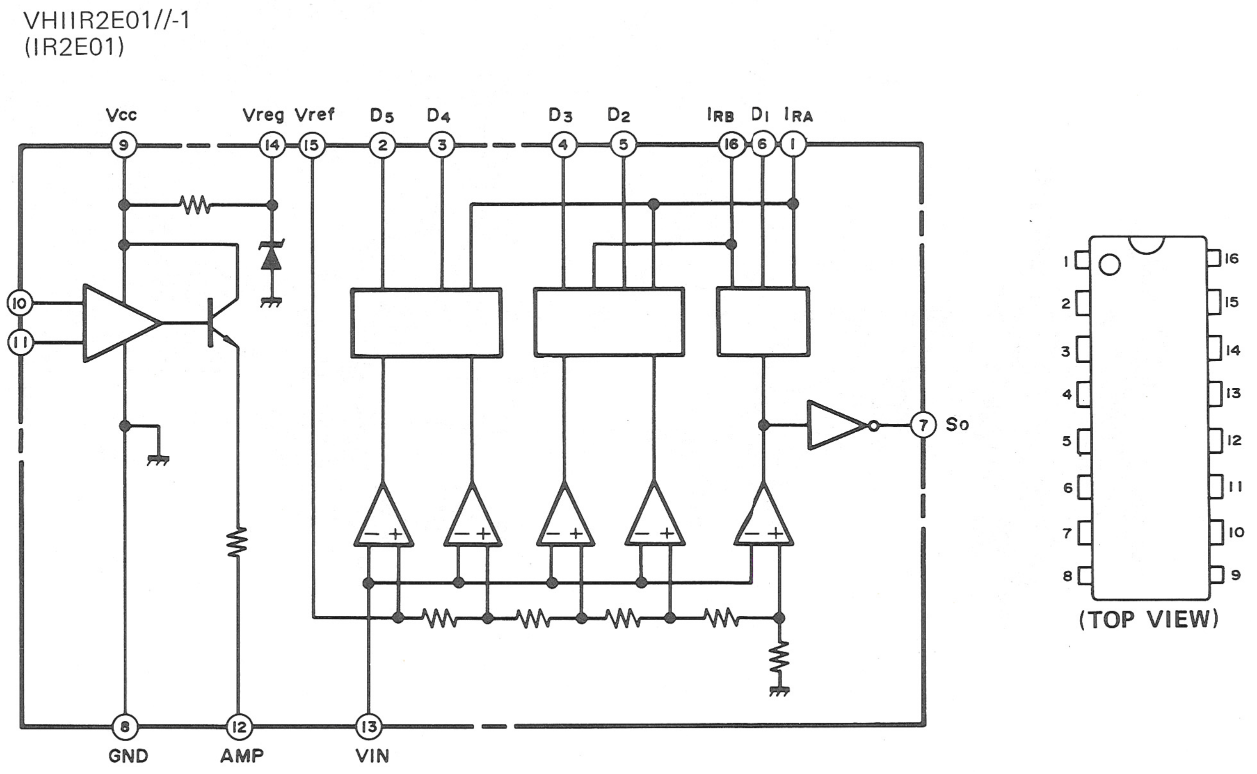

VHIIR2E01//-1
(IR2E01)
Vcc
Vreg
Vref
D5
D4
D3
D2
IRB
D1
IRA
So
GND
AMP
VIN
(TOP VIEW)

Figure 65 EQUIVALENT CIRCUIT OF IC (IC261, IC262)

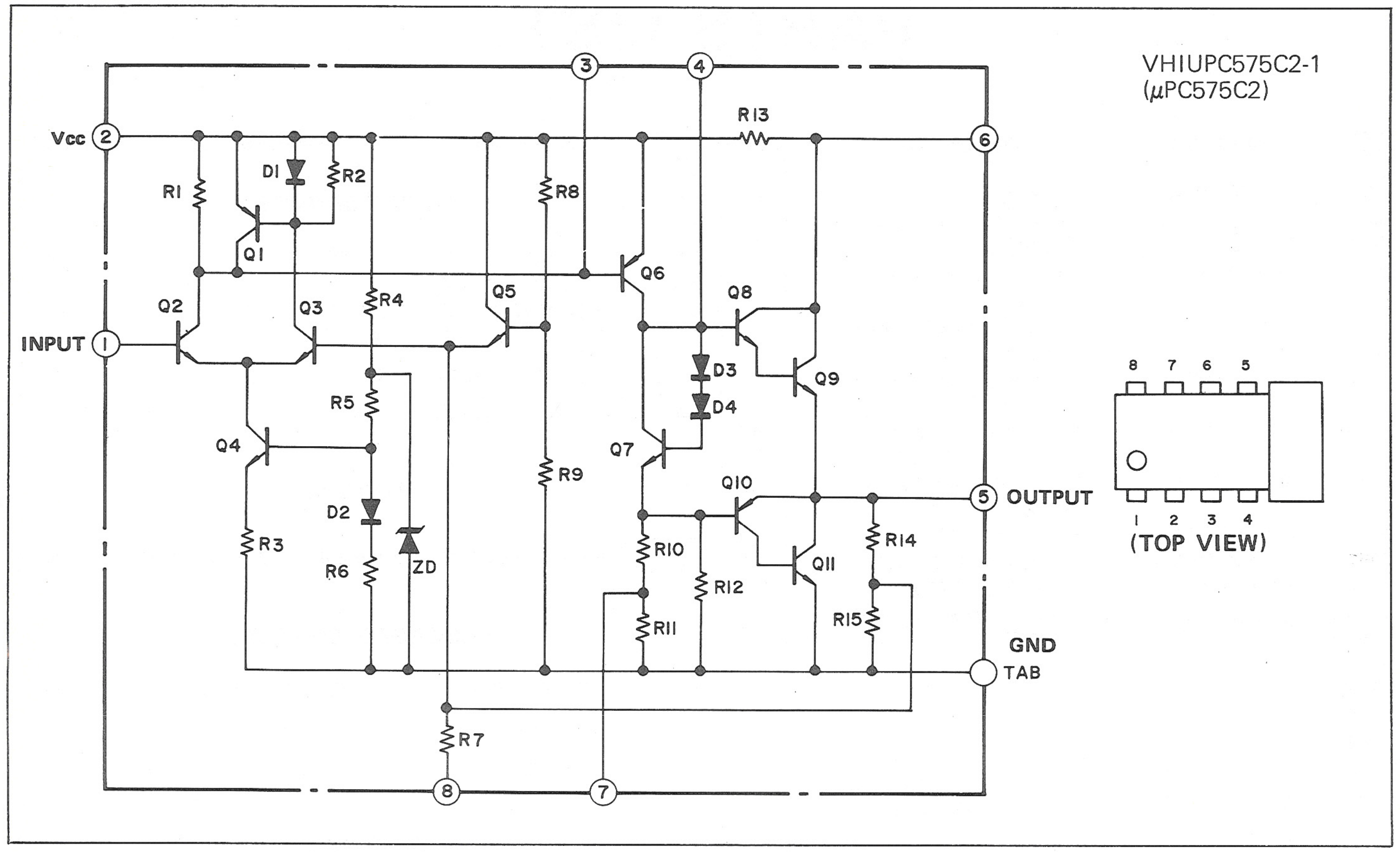

VHIUPC575C2-1
(μPC575C2)
Vcc
INPUT
OUTPUT
GND
TAB
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R13
R14
R15
D1
D2
D3
D4
ZD
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q9
Q10
Q11
8 7 6 5
1 2 3 4
(TOP VIEW)

Figure 66 EQUIVALENT CIRCUIT OF IC (IC401)

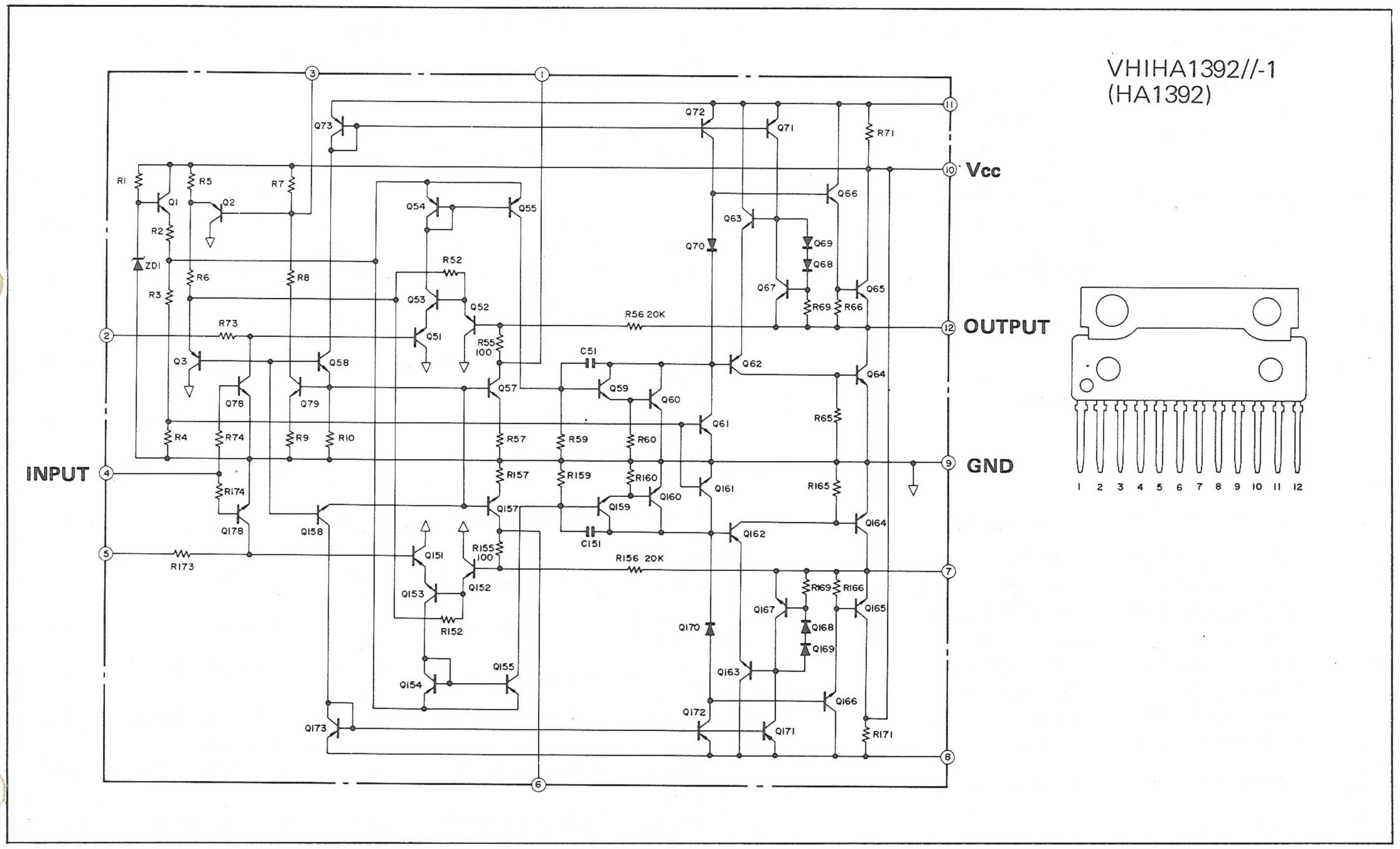

VHIHA1392//-1
(HA1392)
Vcc
OUTPUT
GND
INPUT
R56 20K
R156 20K
R55 100
R155 100
C51
C151
1 2 3 4 5 6 7 8 9 10 11 12

Figure 67 EQUIVALENT CIRCUIT OF IC (IC601, IC602)

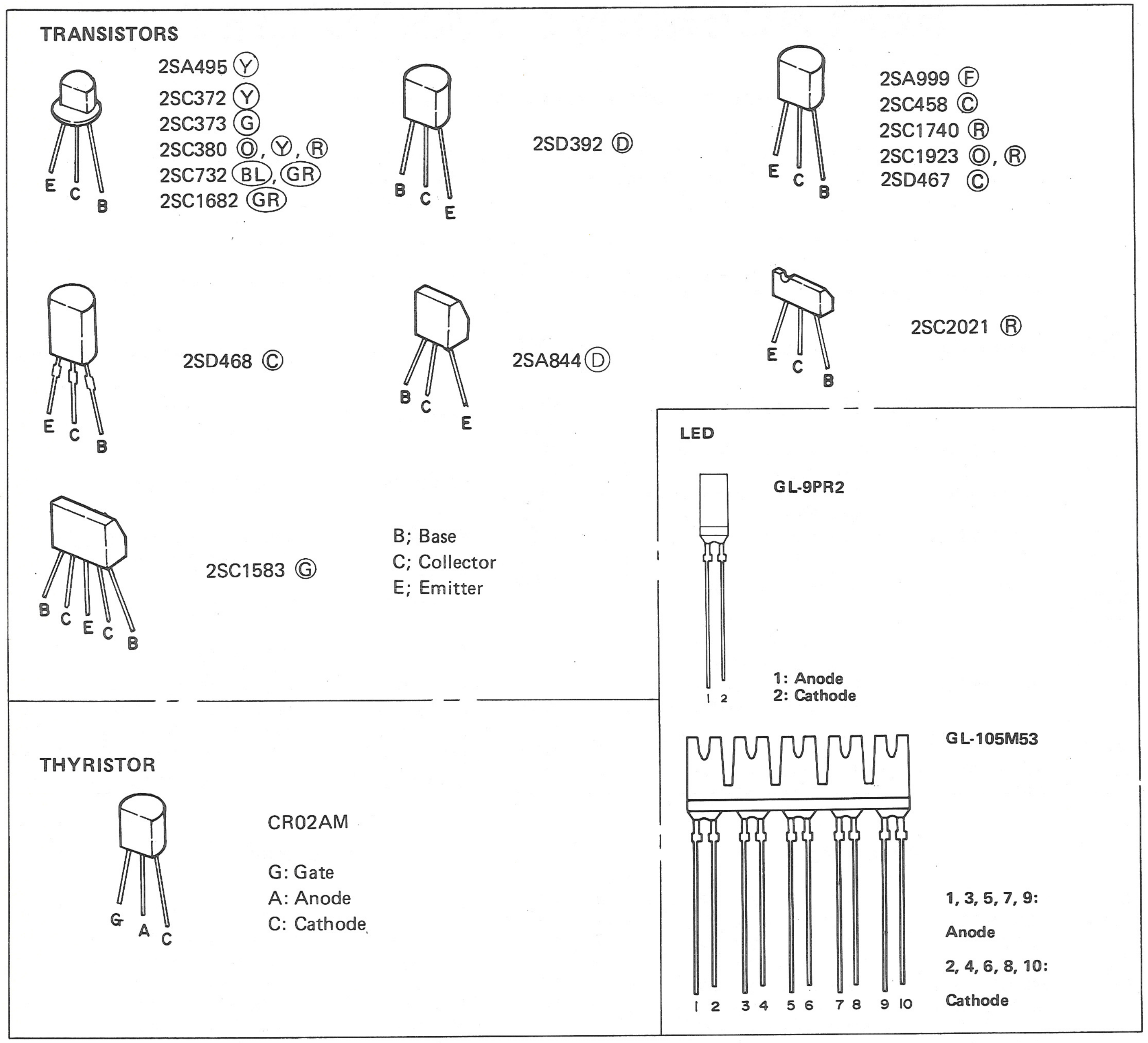

TRANSISTORS
2SA495 Ⓨ
2SC372 Ⓨ
2SC373 Ⓖ
2SC380 Ⓞ, Ⓨ, Ⓡ
2SC732 (BL), (GR)
2SC1682 (GR)
E C B
2SD392 Ⓓ
B C E
2SA999 Ⓕ
2SC458 Ⓒ
2SC1740 Ⓡ
2SC1923 Ⓞ, Ⓡ
2SD467 Ⓒ
E C B
2SD468 Ⓒ
E C B
2SA844 Ⓓ
B C E
2SC2021 Ⓡ
E C B
2SC1583 Ⓖ
B C E C B
B; Base
C; Collector
E; Emitter
THYRISTOR
CR02AM
G: Gate
A: Anode
C: Cathode
G A C
LED
GL-9PR2
1: Anode
2: Cathode
1 2
GL-105M53
1 2 3 4 5 6 7 8 9 10
1, 3, 5, 7, 9:
Anode
2, 4, 6, 8, 10:
Cathode

Figure 68 TERMINAL GUIDE OF TRANSISTOR, THYRISTOR AND LED

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

Parts marked with " △ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

INTEGRATED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
IC1	RH-IX1083AFZZ	FM IF Amp. and Detector (TA7303P)	AK
IC2	RH-IX1082AFZZ	PLL FM Stereo Demodulator (BA1320)	AL
IC101	RH-IX1116AFZZ	Phono Equalizer Amp. (BA-328)	AG
IC261, IC262	VHIIR2E01//-1	Level Meter Drive (IR2E01)	AH
IC401	VHIUPC575C2-1	Echo Amp. (μPC575C2)	AH
IC551	VHILM13600N-1	Voltage Control, Low Pass Filter (LM13600N)	AP
IC552	VHILM358N//-1	Mix. Amp., Hi Pass Filter, Peak Detector (LM358N)	AG
IC601, IC602	VHIHA1392//-1	Audio Power Amp. (HA1392)	AR
IC701	RH-IX0408AGZZ	APLD Amp. (TA7120P)	AE
IC751	VHIM54834//-1	APLD Control (M54834)	AQ

TRANSISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
Q1	VS2SC1923O/-1	FM RF Amp. (2SC1923 Ⓞ)	AC
Q2	VS2SC1923R/-1	FM Mixer (2SC1923 Ⓡ)	AC
Q3	VS2SC1923R/-1	FM Oscillator (2SC1923 Ⓡ)	AC
Q4	VS2SC380-O/-1	FM IF Amp. (2SC380 Ⓞ)	AC
Q5	VS2SC380-O/-1	AM Mixer (2SC380 Ⓞ)	AC
Q6	VS2SC380-R/-1	AM Oscillator (2SC380 Ⓡ)	AC
Q7	VS2SC380-O/-1	AM IF Amp. (2SC380 Ⓞ)	AC
Q8	VS2SC380-Y/-1	AM IF Amp. (2SC380 Ⓨ)	AC
Q101, Q102	VS2SC1682GR-1	Equalizer Amp. (2SC1682 (GR))	AC
Q103, Q104	VS2SC732-G/-1	Equalizer Amp. (2SC732 (GR))	AC
Q107, Q108	VS2SC732BL/1F	Record Amp. (2SC732 (BL))	AD
Q109, Q110	VS2SC373-G/-1	Record Amp. (2SC373 Ⓖ)	AC
Q111	VS2SC1583G-1F	ALC Amp. (2SC1583 Ⓖ)	AE
Q112	VS2SC373-G/-1	ALC Amp. (2SC373 Ⓖ)	AC
Q115, Q116	VS2SC2021-R-1	Wide Phase Shifter (2SC2021 Ⓡ)	AB
Q117	VS2SD468-C/-1	Ripple Filter (2SD468 Ⓒ)	AD
Q301, Q302	VS2SD467-C/-1	Record Bias Oscillator (2SD467 Ⓒ)	AC
Q401	VS2SC1682GR-1	Mix.Mic.Amp. (2SC1682 (GR))	AC
Q402	VS2SC732-G/-1	Mix.Mic.Amp. (2SC732 (GR))	AC
Q403	VS2SD392-D/-1	Echo Muting (2SD392 Ⓓ)	AC
Q404	VS2SC458-C/-1	Buffer (2SC458 Ⓒ)	AB
Q503	VS2SC1740R/-1	Tape Speed Control (2SC1740 Ⓡ)	AB
Q504, Q505	VS2SC458-C/-1	Tape Speed Control (2SC458 Ⓒ)	AB
Q551, Q552, Q601, Q602	VS2SC1740R/-1	Buffer (2SC1740 Ⓡ)	AB
Q701	VS2SA495-Y/-1	APLD Switching (2SA495 Ⓨ)	AC
Q702, Q703	VS2SC372-Y/-1	APLD Level Comparison (2SC372 Ⓨ)	AC
Q704	VS2SA495-Y/-1	Pulse Generation (2SA495 Ⓨ)	AC
Q751	VS2SD468-C/-1	Voltage Regulator Circuit (2SD468 Ⓒ)	AD
Q752	VS2SA999-F/-1	Switching (2SA999 Ⓕ)	AC
Q753	VS2SC458-C/-1	Switching (2SC458 Ⓒ)	AB
Q754	VS2SA844-D/-1	Plunger Drive (2SA844 Ⓓ)	AC
Q755	VS2SD468-C/-1	Plunger Drive (2SD468 Ⓒ)	AD
Q758, Q759	VS2SD392-D/-1	APLD Muting (2SD392 Ⓓ)	AC

DIODES

REF. NO.	PART NO.	DESCRIPTION	CODE
D1, D2	VHD1S2473//-1	Protector (1S2473)	AA
D3	VHC1S2688-B1F	FM AFC (1S2688 Ⓑ)	AC
D4	VHD1N34A///-1	Tuning Meter Bias (1N34A)	AB
D5	VHD1S2473//-1	Tuning Meter Bias (1S2473)	AA
D6	VHD1N34A///-1	AM Overload (1N34A)	AB
D7	VHD1N34A///-1	AM Detector (1N34A)	AB
D8	VHD1N34A///-1	AM Tuning Detector (1N34A)	AB
D9	VHEEZ-075//-1	Zener, Voltage Regulator (EZ-075)	AB
D10	VHD1S2473//-1	Protector (1S2473)	AA
D101, D102, D103, D104	VHD1S34////-1	ALC (1S34BL)	AB
D107	VHD1N34A///-1	ALC (1N34A)	AB
D108	VHD1S2473//-1	Muting (1S2473)	AA
D261, D263, D265, D267, D269	VHPGL105M53-1	LED, VU/Tuning (GL-105M53)	AK
D262, D264, D266, D268, D270	VHPGL105M53-1	LED, VU/Battery Check (GL-105M53)	AK
D401	VHD1S2076//-1	Reverse Current Prevent (1S2076)	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
D501	RH-DX1006AFZZ	Protector (10E1)	AB
D506, D507	VHD1S2076//-1	Reverse Current Prevent (1S2076)	AB
D551	VHEHZ6B2L//-1	Zener, Voltage Regulator (HZ6B2L)	AC
D552	VHD1S2076//-1	Protector, Peak Detector Amplifier (1S2076)	AB
D553	VHD1S2076//-1	Protector, Reverse Voltage (1S2076)	AB
D554	VHD1S2076//-1	Protector, Peak Detector Amplifier (1S2076)	AB
D555	VHD1S2076//-1	Reverse Current Prevent (1S2076)	AB
D702	VHD1S2473//-1	Protector (1S2473)	AA
D751	VHEHZ11B3L/-1	Zener, 11V (HZ11B3L)	AC
D752	VHEHZ6B2L//-1	Zener, 6V (HZ6B2L)	AC
D753, D755	VHD1S2076//-1	Reverse Current Prevent (1S2076)	AB
D761, D762, D763, D764, D765, D766, D767, D768, D769, D770, D771	———	LED, APLD Program Indicator (Part of SW751) (GL-9PR2)	
D901, D902, D903, D904	VHD30D1FAS/-1	Rectifier, Power (30D1)	AD
D951	RH-PX1008AFZZ	LED, Mixing Indicator (GL-9PR2)	AD
D952	RH-PX1008AFZZ	LED, Power Indicator (GL-9PR2)	AD
D953	RH-PX1008AFZZ	LED, FM Stereo Indicator (GL-9PR2)	AD

THYRISTOR

REF. NO.	PART NO.	DESCRIPTION	CODE
SCR751	VHSCR02AM1B-1	Switching (CR02AM)	AE

COILS

REF. NO.	PART NO.	DESCRIPTION	CODE
L1, L2	RCILR0112AFZZ	FM RF	AA
L3, L4	RCILR0089AFZZ	FM Oscillator	AA
L5	RCILC0030AFZZ	FM IF Trap	AB
L6	RCILA0255AFZZ	SW Antenna	AD
L7	RCILA0408AFZZ	MW/LW Antenna	AL
L8	RCILB0309AFZZ	SW Oscillator	AD
L9	RCILB0389AFZZ	MW Oscillator	AD
L10	RCILB0353AFZZ	LW Oscillator	AC
L11	RCILC0066AFZZ	Choke	AC
L12	RCILF0014AGZZ	Choke	AC
L101, L102	RCILB0468AFZZ	Bias Step-up	AD
L103, L104	VP-CH102K0000	1mH, Peaking	AB
L301	RCILB0465AFZZ	Bias Oscillator	AE
L501	RCILF0014AGZZ	Noise Suppressor	AC

TRANSFORMERS

REF. NO.	PART NO.	DESCRIPTION	CODE
T1	RCILI0157AFZZ	FM IF	AC
T2	RCILI0208AFZZ	FM IF	AC
T3	RCILI0224AFZZ	AM IF	AH
T4	RCILI0170AFZZ	AM IF	AC
T101, T102	RTRNI0065AFZZ	Recording	AF
△T901	RTRNP0717AFZZ	Power	AZ

FILTERS

REF. NO.	PART NO.	DESCRIPTION	CODE
CF101, CF102	RFILF0009AFZZ	Ceramic, 10.7MHz, FM IF	AD

PACKAGED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
M1	RFILF0056AFZZ	B.P.F., FM Antenna	AE
M2, M3	RMPTA0104AFZZ	Low Pass Filter	AD
R779	RMPTC0020AFZZ	Resistor Array, 2.2K ohm x 11	AD

CONTROLS

REF. NO.	PART NO.	DESCRIPTION	CODE
VC1, VC2, VC3, VC4, TC1, TC2, TC4, TC7	RVC-R0057AFZZ	Variable Capacitor, Tuning with Trimmers TC1; FM RF Trimmer TC2; FM Oscillator Trimmer TC4; MW Antenna Trimmer TC7; MW Oscillator Trimmer	AN
TC3, TC5	RTO-H2050AFZZ	Trimmers TC3; SW Antenna Trimmer TC5; LW Antenna Trimmer	AD
TC6	RTO-H1007AFZZ	Trimmer, SW Oscillator	AC
TC8	RTO-H1007AFZZ	Trimmer, LW Oscillator	AC
R22	RVR-M0130AFZZ	50K ohm (B), Muting Level Adjust	AC
R34	RVR-M0127AFZZ	10K ohm (B), PLL VCO Adjust	AC
R139/ R140	RVR-B0229AFZZ	20K ohm (B), Fader	AL
R147/ R148	RVR-Z0069AFZZ	50K ohm (A), Record Level	AK
R183	RVR-M0221AFZZ	20K ohm (B), VU LED Meter Adjust	AB
R195/ R196	RVR-P0065AFZZ	100K ohm (A), Treble	AG
R201/ R202	RVR-P0065AFZZ	100K ohm (A), Bass	AG
R227/ R228	RVR-Z0068AFZZ	20K ohm (B), Volume	AK
R301, R302	RVR-M0126AFZZ	5K ohm (B), Bias Current Adjust	AC
VR260	RVR-M0220AFZZ	5K ohm (B), Battery Check LED Meter Adjust	AB
VR401 (A,B)	RVR-Q0066AFZZ	10K ohm (B) x 2, Echo Adjust	AH
VR501	RVR-Q0065AFZZ	500 ohm (B), Tape Speed Adjust	AF
VR601, VR602	RVR-Z0088AFZZ	50K ohm (RD), Attenuator	AE

PARTS LIST

ELECTROLYTIC CAPACITORS

(Unless otherwise specified electrolytic capacitors are 16V, +50 −10% type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
C17	VCEAAU1CW476Y	47MFD	AB
C23	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C31	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C35	VCEAAU1CW476Y	47MFD	AB
C41	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C44	VCEAAU1EW335A	3.3MFD, 25V, +75 −10%	AB
C45	VCEAAU1CW477Y	470MFD	AC
C49	VCEALU1HW335M	3.3MFD, 50V, ±20%	AB
C52	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C53	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C60, C61	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C88, C93	VCEAAU1AW107Y	100MFD, 10V, +50 −10%	AB
C94	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C97	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C98	VCEAAU1AW107Y	100MFD, 10V, +50 −10%	AB
C99	VCEAAU1CW106Y	10MFD	AB
C100	VCEALU1HW105M	1MFD, 50V, ±20%	AB
C101, C102	VCEALU1EC475M	4.7MFD, 25V, ±20%	AB
C103, C104	VCEAAU1AW476Y	47MFD, 10V, +50 −10%	AB
C111, C112	VCEAAU1CW106Y	10MFD	AB
C113	RC-EZS337AF1C	330MFD, 16V, ±20%	AC
C114	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C115, C116	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C117, C118	VCEALU1EC335M	3.3MFD, 25V, ±20%	AB
C123, C124	VCEAAU1CW106Y	10MFD	AB
C125, C126	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C129, C130, C131, C132, C135, C136	VCEAAU1CW106Y	10MFD	AB
C140	VCEAAU1HW475A	4.7MFD, 50V, +75 −10%	AB
C143, C144	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C147, C148	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C149, C150	RC-EZS227AF1A	220MFD, 10V, ±20%	AB
C153, C154	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C159	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C160	VCEAAU1AW107Y	100MFD, 10V, +50 −10%	AB
C161, C162	RC-EZS337AF1C	330MFD, 16V, ±20%	AC
C163, C164	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C183, C184	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C185, C186	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C189, C190	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C196	VCEAAU1EW107Y	100MFD, 25V, +50 −10%	AC
C197	VCEAAU1CW108Y	1000MFD	AD
C198, C199, C201, C202	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C263, C264	VCEAAU1CW106Y	10MFD	AB
C265, C267	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C278	RC-EZS227AF1E	220MFD, 25V, ±20%	AC
C303	RC-EZS477AF1C	470MFD, 16V, ±20%	
C402	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C404	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C405	VCEAAU1CW106Y	10MFD	AB
C406	RC-EZS227AF1E	220MFD, 25V, ±20%	AC
C407, C408	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C409	RC-EZS227AF1A	220MFD, 10V, ±20%	AB
C412	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C414	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C415	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C417, C505	VCEAAU1EW106Y	10MFD, 25V, +50 −10%	AB
C506	RC-EZS227AF1C	220MFD, 16V, ±20%	AC
C551, C552	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C553	RC-EZS107AF1C	100MFD, 16V, ±20%	AB
C554	VCEAAU1CW106Y	10MFD	AB
C557, C558	VCEAAU1EW475A	4.7MFD, 25V, +75 −10%	AB
C562	VCEALU1HW225M	2.2MFD, 50V, ±20%	AB
C563, C566	VCEAAU1CW106Y	10MFD, 16V, +50 −10%	AB
C567	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C568	VCEAAU1EW106Y	10MFD, 25V, +50 −10%	AB
C601, C602	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C605, C606, C607, C608	RC-EZS107AF0J	100MFD, 6.3V, ±20%	AB
C609, C610, C613, C614	RC-EZS107AF1A	100MFD, 10V, ±20%	AB
C619, C620, C621, C622	RC-EZS108AF1A	1000MFD, 10V, ±20%	AD
C623	RC-EZS107AF1E	100MFD, 25V, ±20%	AC
C627	RC-EZS338AF1E	3300MFD, 25V, ±20%	AH
C631, C632	RC-EZS107AF0J	100MFD, 6.3V, ±20%	AB
C635	VCEAAU1CW106Y	10MFD	AB
C652	RC-EZS477AF1A	470MFD, 10V, ±20%	AC
C653, C654	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C659	RC-EZS227AF1A	220MFD, 10V, ±20%	AB
C703	VCEAAU1AW336Y	33MFD, 10V, +50 −10%	AB
C704	VCEAAU1EW335A	3.3MFD, 25V, +75 −10%	AB
C705	VCEAAU1HW105A	1MFD, 50V, +75 −10%	AB
C706	VCEALU1HW335M	3.3MFD, 50V, ±20%	AB
C707	VCEAAU1EW336Y	33MFD, 25V, +50 −10%	AB
C751	RC-EZS107AF1C	100MFD, 16V, ±20%	AB
C752	VCEALU1HW104M	.1MFD, 50V, ±20%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C755	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C757, C758	VCEAAU1CW106Y	10MFD	AB
C801, C802	VCE9AT1SD475M	4.7MFD, 30V, ±20%, Non-Polar	AD

CAPACITORS

(Unless otherwise specified capacitors are 50V, +80 −20%, Ceramic type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
C1	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic	AA
C3, C4	VCKZPU1HF102Z	.001MFD	AA
C5	VCCSPU1HL5R0C	5PF, 50V, ±0.25PF, Ceramic	AA
C6	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C7, C8	VCKYPU1HB222M	.0022MFD, 50V, ±20%, Ceramic	AA
C9	VCCSPU1HL5R0C	5PF, 50V, ±0.25PF, Ceramic	AA
C10	VCCCPU1HH1R0C	1PF, 50V, ±0.25PF, Ceramic	AA
C11	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	AA
C12	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C13	VCCSPU1HL3R0C	3PF, 50V, ±0.25PF, Ceramic	AA
C14	VCKZPU1HF103Z	.01MFD	AA
C15	VCKZPU1HF103Z	.01MFD	AA
C16	VCKYPU1HB222M	.0022MFD, 50V, ±20% Ceramic	AA
C18	VCCUPU1HJ150J	15PF, 50V, ±5%, Ceramic	AA
C19	VCCCPU1HH6R0C	6PF, 50V, ±0.25PF, Ceramic	AA
C21	VCCSPU1HH180J	18PF, 50V, ±5%, Ceramic	AA
C22	VCKZPU1HF103Z	.01MFD	AA
C24	VCKZPU1HF223Z	.022MFD	AA
C25	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C26, C27	VCKZPU1HF103Z	.01MFD	AA
C28	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C29	VCCSPU1HL5R0C	5PF, 50V, ±0.25PF, Ceramic	AA
C30	VCKZPU1HF103Z	.01MFD	AA
C32	VCKZPU1HF223Z	.022MFD	AA
C33	VCKZPU1HF103Z	.01MFD	AA
C34	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic	AA
C36	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C37, C38, C39	VCKZPU1HF223Z	.022MFD	AA
C40	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AA
C42	VCKZPU1HF103Z	.01MFD	AA
C43	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C46	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic	AA
C47	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C48	VCKZPU1HF103Z	.01MFD	AA
C50	VCQSMT1HS471J	470PF, 50V, ±5%, Styrol	AB
C51	VCQYKU1HM473M	.047MFD, 50V, ±20%, Mylar	AB
C54	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AA
C55, C56	VCKYPU1HB681K	680PF, 50V, ±10%, Ceramic	AA
C57, C58	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic	AA
C59	VCCSPU1HL181J	180PF, 50V, ±5%, Ceramic	AA
C62, C63	VCKZPU1HF103Z	.01MFD	AA
C64	VCCSPU1HL3R0C	3PF, 50V, ±0.25PF, Ceramic	AA
C65	VCCSPU1HL390J	39PF, 50V, ±5%, Ceramic	AA
C66	VCKZPU1HF103Z	.01MFD	AA
C67	VCQSMT1HS332J	3300PF, 50V, ±5%, Styrol	AB
C68	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C69	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AA
C70	VCKZPU1HF102Z	.001MFD	AA
C71	VCCCPU1HH5R0C	5PF, 50V, ±0.25PF, Ceramic	AA
C72	VCCCPU1HH220J	22PF, 50V, ±5%, Ceramic	AA
C73	VCKZPU1HF223Z	.022MFD	AA
C74	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AA
C75	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C76	VCQYKU1HM473M	.047MFD, 50V, ±20%, Mylar	AB
C77	VCKZPU1HF223Z	.022MFD	AA
C78	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C79	VCKZPU1HF103Z	.01MFD	AA
C80	VCCSPU1HL331J	330PF, 50V, ±5%, Ceramic	AA
C81, C82, C83	VCKZPU1HF223Z	.022MFD	AA
C84	VCKZPU1HF222Z	.0022MFD	AA
C85, C86	VCKZPU1HF223Z	.022MFD	AA
C87	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C89, C90	VCKZPU1HF223Z	.022MFD	AA
C91	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C92	VCKZPU1HF103Z	.01MFD	AA
C95	VCKZPU1HF223Z	.022MFD	AA
C96	VCQYKU1HM223K	.022MFD, 50V, ±10%, Mylar	AB
C105, C106	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C107, C108	VCQYKU1HM273K	.027MFD, 50V, ±10%, Mylar	AB
C109, C110	VCQYKU1HM822K	.0082MFD, 50V, ±10%, Mylar	AA
C119, C120	VCKYPU1HB561K	560PF, 50V, ±10%, Ceramic	AA
C121, C122	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C127, C128	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AA
C133, C134	VCQYKU1HM333J	.033MFD, 50V, ±5%, Mylar	AB
C137	VCCSPU1HL470J	47PF, 50V, ±5%, Ceramic	AA
C138	VCQSMT1HS151J	150PF, 50V, ±5%, Styrol	AB
C139	VCQYKU1HM333K	.033MFD, 50V, ±10%, Mylar,	AB
C141	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C142	VCKZPU1HF333P	.033MFD, 50V, +100 −0%, Ceramic	AA
C145, C146	VCQYKU1HM102M	.001MFD, 50V, ±20%, Mylar	AA
C151, C152	VCCSPU1HL680J	68PF, 50V, ±5%, Ceramic	AA
C155, C156	VCKYPU1HB681K	680PF, 50V, ±10%, Ceramic	AA
C157, C158	VCKYPU1HB821K	820PF, 50V, ±10%, Ceramic	AA
C165, C166	VCKYPU1HB681K	680PF, 50V, ±10%, Ceramic	AA
C169, C170	VCQYKU1HM222K	.0022MFD, 50V, ±10%, Mylar	AA
C171, C172	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AA
C173, C174	VCQYKU1HM103K	.01MFD, 50V, ±10%, Mylar	AA
C175, C176	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C177, C178	VCQYKU1HM683K	.068MFD, 50V, ±10%, Mylar	AB
C179, C180	VCQYKU1HM473K	.047MFD, 50V, ±10%, Mylar	AB
C181, C182	VCCSPU1HL151J	150PF, 50V, ±5%, Ceramic	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C187, C188	VCQYKU1HM683K	.068MFD, 50V, ±10%, Mylar	AB
C191, C192	VCQYKU1HM392K	.0039MFD, 50V, ±10%, Mylar	AA
C193, C194	VCQYKU1HM683K	.068MFD, 50V, ±10%, Mylar	AB
C195	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C203, C204	VCQYKU1HM683K	.068MFD, 50V, ±10%, Mylar	AB
C205, C206	VCQYKU1HM222K	.0022MFD, 50V, ±10%, Mylar	AA
C261, C262	VCKYPU1HB471K	470PF, 50V, ±10%, Ceramic	AA
C301	VCQYKU1HM332K	.0033MFD, 50V, ±10%, Mylar	AA
C302	VCKZPU1HF103Z	.01MFD	AA
C304, C305	VCQYKU1HM332K	.0033MFD, 50V, ±10%, Mylar	AA
C306	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C307	VCQYKU1HM272K	.0027MFD, 50V, ±10%, Mylar	AA
C308	VCQPSU2AA473J	.047MFD, 100V, ±5%, Polypropylene	AC
C309	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C401	VCQYKU1HM563K	.056MFD, 50V, ±10%, Mylar	AB
C403	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C410	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C416	VCQYKU1HM563K	.056MFD, 50V, ±10%, Mylar	AB
C504	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C555	VCKYAT1HB271K	270PF, 50V, ±10%, Ceramic	AA
C556, C559	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C560	VCQYKU1HM392K	.0039MFD, 50V, ±10%, Mylar	AA
C561, C564	VCKZPU1HF223Z	.022MFD	AA
C565	VCQYKU1HM222K	.0022MFD, 50V, ±10%, Mylar	AA
C611, C612	VCTYPU1EX104M	.1MFD, 25V, ±20%, Semiconductor	AB
C615, C616	VCTYPU1EX104M	.1MFD, 25V, ±20%, Semiconductor	AB
C633, C634	VCTYPU1EX223M	.022MFD, 25V, ±20%, Semiconductor	AB
C655, C656	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C657, C658	VCQYKU1HM153K	.015MFD, 50V, ±10%, Mylar	AA
C660, C661	VCCSPU1HL271J	270PF, 50V, ±5%, Ceramic	AA
C662, C663	VCQYKU1HM152K	1500PF, 50V, ±10%, Mylar	AA
C701	VCKZPU1HF223Z	.022MFD	AA
C702	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	AA
C754	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AA
C759	VCKZPU1HF223Z	.022MFD	AA
C901, C902, △ C903, C904, C905	VCKZPU1HF104Z	.01MFD	AB

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R1	VRD-ST2EE102J	1K ohm	AA
R7	VRD-SU2EE471J	470 ohm	
R14	VRD-SU2EE562J	5.6K ohm	AA
R15	VRD-SU2EE331J	330 ohm	
R19	VRD-ST2EE471J	470 ohm	
R20	VRD-SU2EE102J	1K ohm	
R21	VRD-SU2EE153J	15K ohm	
R23	VRD-ST2EE181J	180 ohm	
R27	VRD-ST2EE821J	820 ohm	
R29, R32	VRD-ST2EE271J	270 ohm	
R33	VRD-SU2EE153J	15K ohm	
R36	VRD-ST2EE101J	100 ohm	
R46	VRD-SU2EE101J	100 ohm	
R47	VRD-SU2EE152J	1.5K ohm	
R50, R52	VRD-SU2EE100J	10 ohm	
R53	VRD-SU2EE121J	120 ohm	
R54	VRD-SU2EE471J	470 ohm	
R55	VRD-ST2EE184J	180K ohm	
R56	VRD-SU2EE474J	470K ohm	
R57	VRD-SU2EE121J	120 ohm	
R59	VRD-SU2EE223J	22K ohm	
R60	VRD-SU2EE102J	1K ohm	
R61	VRD-ST2EE103J	10K ohm	
R62	VRD-ST2EE471J	470 ohm	
R63	VRD-ST2EE152J	1.5K ohm	
R64	VRD-ST2EE182J	1.8K ohm	
R65	VRD-ST2EE562J	5.6K ohm	
R69	VRD-ST2EE561J	560 ohm	
R70	VRD-ST2EE473J	47K ohm	
R71	VRD-ST2EE471J	470 ohm	
R72	VRD-ST2EE562J	5.6K ohm	
R73	VRD-ST2EE123J	12K ohm	
R76	VRD-ST2EE153J	15K ohm	
R78	VRD-ST2EE471J	470 ohm	
R109	VRD-ST2EE391J	390 ohm	
R110	VRD-SU2EE391J	390 ohm	
R111, R112	VRD-ST2EE104J	100K ohm	
R113, R114	VRD-ST2EE103J	10K ohm	
R115, R116	VRD-ST2EE101J	100 ohm	
R117	VRD-ST2EE151J	150 ohm	
R118	VRD-SU2EE151J	150 ohm	
R119, R120	VRD-SU2EE274J	270K ohm	
R121	VRD-ST2EE184J	180K ohm	
R122	VRD-SU2EE184J	180K ohm	
R123	VRD-ST2EE102J	1K ohm	
R124	VRD-SU2EE102J	1K ohm	
R125	VRD-ST2EE392J	3.9K ohm	
R126	VRD-SU2EE392J	3.9K ohm	
R127, R128	VRD-ST2EE332J	3.3K ohm	
R129	VRD-SU2EE332J	3.3K ohm	
R130	VRD-ST2EE332J	3.3K ohm	
R131	VRD-SU2EE104J	100K ohm	
R132	VRD-ST2EE104J	100K ohm	
R133, R134	VRD-SU2EE682J	6.8K ohm	
R135	VRD-ST2EE561J	560 ohm	
R149	VRD-SU2EE822J	8.2K ohm	
R150	VRD-ST2EE822J	8.2K ohm	
R157, R158	VRD-ST2EE102J	1K ohm	
R159	VRD-SU2EE470J	47 ohm	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R160	VRD-ST2EE470J	47 ohm	AA
R161	VRD-SU2EE153J	15K ohm	
R163, R164	VRD-SU2EE223J	22K ohm	
R165	VRD-ST2EE473J	47K ohm	
R167, R168	VRD-ST2EE101J	100 ohm	
R169	VRD-SU2EE393J	39K ohm	
R170	VRD-ST2EE393J	39K ohm	
R171, R172	VRD-SU2EE563J	56K ohm	
R173, R174	VRD-ST2EE102J	1K ohm	
R177	VRD-SU2EE153J	15K ohm	
R179, R180	VRD-ST2EE332J	3.3K ohm	
R181, R182	VRD-SU2EE223J	22K ohm	
R187, R188	VRD-SU2EE393J	39K ohm	
R208	VRD-SU2EE561J	560 ohm	
R213	VRD-ST2EE474J	470K ohm	
R214	VRD-SU2EE474J	470K ohm	
R223, R224	VRD-SU2EE562J	5.6K ohm	
R233	VRD-ST2EE121J	120 ohm	
R238	VRD-SU2EE473J	47K ohm	
R239	VRD-ST2EE681J	680 ohm	
R240	VRD-ST2EE222J	2.2K ohm	
R241	VRD-ST2EE562J	5.6K ohm	
R242	VRD-SU2EE562J	5.6K ohm	
R243, R244	VRD-ST2EE222J	2.2K ohm	
R245, R246	VRD-ST2EE152J	1.5K ohm	
R249	VRD-ST2EE223J	22K ohm	
R250	VRD-SU2EE223J	22K ohm	
R251	VRD-SU2EE684J	680K ohm	
R252	VRD-ST2EE684J	680K ohm	
R253, R254, R255, R256	VRD-ST2EE562J	5.6K ohm	
R257, R258	VRD-ST2EE104J	100K ohm	
R259, R260	VRD-ST2EE103J	10K ohm	
R261, R262	VRD-ST2EE272J	2.7K ohm	
R263, R264	VRD-ST2EE333J	33K ohm	
R265, R266	VRD-ST2EE562J	5.6K ohm	
R267, R268	VRD-ST2EE103J	10K ohm	
R269, R270	VRD-ST2EE823J	82K ohm	
R271, R272, R273, R274	VRD-ST2EE153J	15K ohm	
△ R275	VRG-ST2HA220J	22 ohm, 1/2W, ±5%, Fusible	AB
R277	VRD-ST2EE473J	47K ohm	AA
R303	VRD-ST2EE1R0J	1 ohm	
R304	VRD-ST2EE560J	56 ohm	AA
R307, R308	VRD-ST2EE100J	10 ohm	
R309	VRD-ST2HA181K	180 ohm, 1/2W, ±10%, Carbon	
R310	VRD-ST2EE102J	1K ohm	
R401	VRD-ST2EE154J	150K ohm	
R410	VRD-ST2EE682J	6.8K ohm	
R411	VRD-ST2EE124J	120K ohm	
R412	VRD-SU2EE102J	1K ohm	
R413	VRD-ST2EE124J	120K ohm	
R414	VRD-ST2EE182J	1.8K ohm	
R415	VRD-ST2EE472J	4.7K ohm	
R416	VRD-ST2EE473J	47K ohm	
R417	VRD-ST2EE682J	6.8K ohm	
R418	VRD-SU2EE102J	1K ohm	
R420	VRD-SU2EE274J	270K ohm	
R421	VRD-SU2EE822J	8.2K ohm	
△R422	VRG-ST2HA100J	10 ohm, 1/2W, ±5%, Fusible	AB
R423	VRD-SU2EE103J	10K ohm	AA
R424	VRD-SU2EE822J	8.2K ohm	
R505	VRD-ST2EE822J	8.2K ohm	
R506, R507	VRD-ST2EE103J	10K ohm	
R508	VRD-ST2EE223J	22K ohm	
R510	VRD-ST2EE273J	27K ohm	
R513	VRD-ST2EE104J	100K ohm	
R551, R552	VRD-ST2EE473J	47K ohm	
R553, R554	VRD-SU2EE562J	5.6K ohm	
R555, R556	VRD-SU2EE473J	47K ohm	
R557	VRD-SU2EE103J	10K ohm	
R558	VRD-ST2EE103J	10K ohm	
R559	VRD-ST2EE273J	27K ohm	
R560	VRD-SU2EE104J	100K ohm	
R561	VRD-ST2EE473J	47K ohm	
R562	VRD-SU2EE473J	47K ohm	
R563	VRD-SU2EE102J	1K ohm	
R564, R565	VRD-ST2EE473J	47K ohm	
R566	VRD-SU2EE473J	47K ohm	
R567, R568, R570	VRD-SU2EE472J	4.7K ohm	
R571	VRD-SU2EE104J	100K ohm	
R572	VRD-SU2EE154J	150K ohm	
R573	VRD-SU2EE104J	100K ohm	
R574	VRD-SU2EE103J	10K ohm	
R575	VRD-ST2EE104J	100K ohm	
R576	VRD-ST2EE103J	10K ohm	
R577	VRD-SU2EE182J	1.8K ohm	
R578	VRD-ST2EE821J	820 ohm	
R579	VRD-SU2EE331J	330 ohm	
R580	VRD-SU2EE334J	330K ohm	
R581	VRD-ST2EE123J	12K ohm	
R582	VRD-SU2EE472J	4.7K ohm	
R583	VRD-ST2EE473J	47K ohm	
R601, R602	VRD-SU2EE333J	33K ohm	
R603	VRD-ST2EE102J	1K ohm	
R604	VRD-SU2EE102J	1K ohm	
R605, R606	VRD-ST2BB2R2J	2.2 ohm, 1/8W, ±5%, Carbon	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R607, R608	VRD-ST2EE221J	220 ohm	AA
R651	VRD-ST2EE472J	4.7K ohm	
R652	VRD-ST2EE102J	1K ohm	
R653, R654	VRD-SU2EE684J	680K ohm	
R655	VRD-ST2EE332J	3.3K ohm	
R656, R657, R658	VRD-SU2EE332J	3.3K ohm	
R659, R660	VRD-SU2EE102J	1K ohm	
R661, R662	VRD-SU2EE562J	5.6K ohm	
R705	VRD-ST2EE330J	33 ohm	
R706	VRD-ST2EE822J	8.2K ohm	
R710	VRD-SU2EE561J	560 ohm	
R751	VRD-SU2EE222J	2.2K ohm	
R752	VRD-ST2EE101J	100 ohm	
R753, R754	VRD-SU2EE102J	1K ohm	
R755	VRD-SU2EE183J	18K ohm	
R756	VRD-SU2EE472J	4.7K ohm	
R757	VRD-SU2EE102J	1K ohm	
R758, R759	VRD-SU2EE103J	10K ohm	
R760	VRD-SU2EE682J	6.8K ohm	
R761	VRD-SU2EE473J	47K ohm	
R762	VRD-SU2EE472J	4.7K ohm	
R763	VRD-SU2EE223J	22K ohm	
R764	VRD-SU2EE271J	270 ohm	
R765	VRD-SU2EE561J	560 ohm	
R767	VRD-SU2EE272J	2.7K ohm	
R771, R772	VRD-SU2EE153J	15K ohm	
R951, R952	VRD-ST2HA681J	680 ohm, 1/2W, ±5%, Carbon	

MECHANICAL PARTS

REF. NO.	PART NO.	DESCRIPTION	CODE
01	JKNBB0071AFSB	Key, Forward APLD	AE
02	JKNBB0072AFSB	Key, Reverse APLD	AE
03	JKNBB0070AFSB	Key, Stop	AF
04	JKNBM0291AFSB	Key, Eject/Fast Forward/ Rewind/Play/Pause	AD
05	JKNBM0292AFSB	Key, Record	AE
06	LANGT0514AFZZ	Bracket, Flywheel	AE
07	LBSHS0001AG00	Bushing, Motor	AA
08	LCHSM0228AFZZ	Main Chassis Assembly	
09	LCHSS0107AF00	Sub-chassis Assembly	
10	LSTWC2001AFZZ	Stop Washer, φ2	AA
11	LSTWC3002AFZZ	Stop Washer, φ3	AA
12	MARMP0001AFZZ	Arm, Auto Stop	AC
13	MARMP0002AFZZ	Arm, Auto Stop Lock Release	AC
14	MLEVF0547AFZZ	Lever, Main Lock Plate	AD
15	MLEVF0548AFZZ	Lever, APLD Lock Plate	AD
16	MLEVF0549AFZZ	Idler, Take-up	AF
17	MLEVF0550AFFW	Lever, Pause	AD
18	MLEVF0551AFFW	Lever, Fast Forward/Rewind	AD
19	MLEVF0643AFZZ	Lever, Play	AG
20	MLEVF0553AFFW	Lever, Eject	AD
21	MLEVF0702AFZZ	Lever, Record	AD
22	MLEVF0555AFZZ	Lever, Forward APLD	AD
23	MLEVF0556AFZZ	Lever, Reverse APLD	AD
24	MLEVF0557AFFW	Lever, Fast Forward/Rewind	AE
25	MLEVF0558AFFW	Lever, Fast Forward	AD
26	NBRGC0054AFZZ	Bearing, Flywheel	AF
27	MLEVF0560AFFW	Lever, Record Mistake Proof	AC
28	MLEVF0564AFFW	Lever, Stop	AD
29	MLEVP0057AF00	Lever, Erase Prevention	AB
30	MLEVP0058AFZZ	Lever, Brake	AC
31	MLEVP0077AFZZ	Lever, Cassette Lock	AC
32	MLEVP0060AFZZ	Lever, Auto Stop	AC
33	MLEVP0061AFZZ	Lever, Tape End Detect	AB
34	MLEVP0062AFZZ	Lever, Fast Forward/Rewind	AB
35	MLEVP0063AFZZ	Lever, Sub-chassis Return	AC
36	MSPRC0031AGMN	Spring, Record/Playback Head Azimuth Adjustment	AA
37	MSPRC0139AFFJ	Spring, Pause/Rewind/Eject/ Fast Forward/Record Lever	AA
38	MSPRC0109AFFJ	Spring, Plunger	AA
39	MSPRC0110AFFJ	Spring, Play Lever	AA
40	MSPRC0111AFFJ	Spring, Tape End Detect Lever	AA
42	MSPRD0107AFFJ	Spring, Pinch Roller	AB
43	MSPRD0108AFFJ	Spring, Brake Lever	AA
44	MSPRD109AFFJ	Spring, Forward APLD Lever	AA
45	MSPRD0110AFFJ	Spring, Reverse APLD Lever	AA
46	MSPRD0111AFFJ	Spring, Stop Lever	AB
47	MSPRD0112AFFJ	Spring, Erase Proof Lever	AA
48	LSTWC2403AFZZ	Stop Washer, φ2.4	AA
49	MSPRD0116AFFJ	Spring, Auto Stop Lock Release Arm	AA
50	MSPRD0117AFFJ	Spring, Record Mistake Proof Lever	AA
51	MSPRP0133AFFW	Spring (Plate type) Cassette Retaining	AC
52	MSPRP0113AFFJ	Spring (Plate type), Auto Stop Arm	AB
53	LANGF0393AFFW	Bracket, Muting Switch	AC
54	MSPRP0115AFFW	Spring (Plate type) Sub-chassis Stopper	AB
57	MSPRT0331AFFJ	Spring, Fast Forward Lever	AA
58	MSPRT0332AFFJ	Spring, Idler	AA
59	MSPRT0333AFFJ	Spring, Roller Assembly	AA
60	MSPRT0334AFFJ	Spring, Auto Stop Lever	AA
61	MSPRT0335AFFJ	Spring, Fast Forward/Rewind Lever	AA
62	NBALS0004AGFJ	Ball, φ3	AA
63	NBLTH0064AF00	Belt, Motor	AD
64	NBLTK0053AF00	Belt, Auto Stop	AC
65	NDAIR0110AFSA	Turntable, Take-up	AF
66	NDAIR0129AFSA	Turntable, Supply	AE
67	NFLYC0053AFZZ	Flywheel	AK
68	NGERH0050AFZZ	Gear, Slip Roller	AC
69	NGERP0050AFZZ	Slip Roller	AB
70	MLEVF0617AFZZ	Lever, Quick Stop	AB
71	NPLYR0052AFZZ	Pulley, Auto Stop	AB
72	NROLM0051AFFW	Roller, Lock Plate	AA
73	NROLV0004AFZZ	Roller, Assembly	AP
74	NROLY0004AFZZ	Pinch Roller	AE
75	MSPRT0330AFFJ	Spring, Play Lever	AA
76	MLEVF0618AFZZ	Lever, Pause Mistake Proof	AC
78	PCUSG0026AG00	Rubber, Brake Lever	AA
79	KCOUB0061AFZZ	Tape Counter	AK
80	RHEDA0074AFZZ	Head, Erase	AN
81	RHEDH0087AFZZ	Head, Record/Playback	AS
82	RMOTV0082AFZZ	Motor	AW
83	RPLU-0053AFZZ	Solenoid	AL
84	PZETF0123AFZZ	Stopper	AA
87	NBLTK0105AFZZ	Belt, Tape Counter	AC
89	MSPRT0151AGFJ	Spring, Cassette Lock Lever	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
90	PSPAA0001AGFJ	Spacer, Motor Bushing	AA
91	MSPRD0137AFFJ	Spring, Quick Stop Lever	AA
92	NPLYR0050AFZZ	Pulley, Take-up	AB
93	LX-HZ0056AFFD	Screw, Flywheel Bracket	AA
94	LX-BZ0107AGZZ	Screw, Flywheel Thrust Adjust	AB
95	MLEVP0076AFZZ	Lever, Pause Mistake Proof	AC
96	MSPRT0390AFFJ	Spring, Pause Mistake Proof Lever	AA
97	LANGF0376AFFW	Plate, Sub-chassis Stopper	AB
98	MSPRT0389AFFJ	Spring, Pause Mistake Proof Lever	AA
99	LHLDW3007AGFD	Wire Holder	AA
100	LX-BZ0148AGFD	Screw, Motor	AA
101	LX-WZ5013AGZZ	Washer, Turntable	AA
102	LX-WZ5015AGZZ	Washer, Tape End Detect Lever	AA
103	LX-WZ5018AGZZ	Washer, Turntable	AA
104	LX-WZ5037AGZZ	Washer, Flywheel	AA
105	LX-WZ7050AFZZ	Spacer, Motor Switch	AA
106	QHWS-2222AGFN	Lug Terminal, Ground	AA
107	PFLT-0313AF00	Felt, Tape End Detect Lever	AA
108	LPLTM0101AFFW	Earthing, Button Lever	AD

MISCELLANEOUS

REF. NO.	PART NO.	DESCRIPTION	CODE
200	GCAB-1071AFSA	Front Cabinet Assembly	BK
⚠ 200-1	GCABA1497AFSA	Cabinet, Front	BA
200-2	GCOVA1205AFSB	Panel, Front Cabinet (Left)	AR
200-3	GCOVA1206AFSB	Panel, Front Cabinet (Right)	AR
200-4	HDECA0415AFSA	Decoration Metal, APLD Switch	AD
200-5	HDECQ0091AFSA	Decoration Metal, Handle (Right)	AF
200-6	HDECQ0092AFSA	Decoration Metal, Handle (Left)	AF
200-7	HDECQ0119AFSA	Decoration Ring, Woofer	AL
200-8	HDECQ0121AFSA	Decoration Ring, Squawker	AD
200-9	HDECQ0122AFSA	Decoration Metal, Built-in Microphone (Left)	AH
200-10	HDECQ0123AFSA	Decoration Metal, Built-in Microphone (Right)	AH
200-11	HPNLD1177AFSA	Plate, Transparent	AG
⚠ 201	GCABB1497AFSA	Cabinet, Back	AW
202	GCOVA1188AFSA	Cover, Front Cabinet	AH
203	GCOVA1197AFSA	Cover, Squawker	AD
204	GFTAB1104AFSA	Lid, Battery Compartment	AE
205	GFTAC1093AFSA	Holder, Cassette	AE
206	GFTAC1094AFSB	Cover, Cassette Holder	AF
207	GNETC1047AFSA	Net, Speaker (Left)	AV
208	GNETC1048AFSA	Net, Speaker (Right)	AV
209	GNETC1038AFSA	Net, Tweeter	AE
210	GWAKP9043AFSA	Panel, Cabinet Top	AW
211	HBDGS1051AFSB	Badge, 3 Way	AG
212	HDALM0322AFSA	Plate, Dial Scale	AM
213	HDECA0393AFSA	Decoration Metal, Cassette Holder Cover	AG
214	HDECA0455AFSA	Decoration Metal, Front Cabinet	AM
215	HDECB0100AFSA	Decoration Metal, Cassette Holder	AD
216	HDECQ0120AFSA	Decoration Metal, Tweeter	AF
217	HINDM1336AFSA	Indication Metal, APLD/Stop	AB
218	HINDP0181AFSA	Indication Metal, Voltage Selector	AC
219	HSSND0253AFSA	Pointer, Dial	AF
220	JHNDG1063AFSB	Handle	AV
221	JKNBM0288AFSA	Knob, Function Selector Switches	AE
222	LBOSD0050AFFW	Boss,Cassette Holder	AB
223	JKNBM0289AFSA	Knob, Editing Switch	AE
224	JKNBM0290AFSA	Knob, Lever Switches	AD
225	JKNBN0300AFSA	Knob, Attenuator	AE
226	JKNBN0394AFSA	Knob, Tuning	AG
227	JKNBN0395AFSA	Knob, Power Switch/Fader Control	AD
228	JKNBP0090AFSA	Knob, Record Level/Bass/ Treble/Volume/Tape Speed/ Echo Controls	AD
229	JKNBP0100AFSB	Knob, Tape Selector/SNRS Switches	AD
230	LANGG0067AFZZ	Bracket, Mode Selector Switch	AB
231	LANGQ0638AFZZ	Bracket, Power Supply P.W. Board	AD
232	LANGR0500AFFW	Bracket, Power Transformer	AC
233	LANGT0924AFFW	Bracket, Spring	AA
234	LANGT0925AFFW	Bracket, Attenuator	AA
235	LANGZ0076AFFW	Bracket, Echo Unit	AE
236	LHLDZ1117AFZZ	Holder, LED	AC
237	LHLDA1055AFSA	Holder, FM/SW Aerial	AB
238	LHLDF1217AFZZ	Frame, P.W. Board	AP
239	LHLDF1218AFZZ	Frame, Echo Unit	AK
240	LHLDP3061AFFN	Holder, Dial Illumination Lamp	AC
241	LHLDW1068AFZZ	Band, Wire (100 mm)	AA
242	LHLDW1069AFZZ	Band, Wire (150 mm)	AA
243	LHLDW1075AFZZ	Band, Wire (60 mm)	AA
244	LHLDW9003CEZZ	Holder, Lead Wires	AA
245	LHLDZ1106AFZZ	Holder, Dial Scale Plate	AG
246	LHLDZ8070AFZZ	Holder, Built-in Microphone	AB
247	LX-BZ0271AFSA	Screw, Cassette Holder	AE
248	LX-CZ0002AFZZ	Screw, Cabinet Retaining, φ4 x 70 mm	AB
249	LX-HZ0057AFFD	Screw, Mechanism Block Retaining, φ3 x 25mm	AA
250	LX-HZ0058AFFD	Screw, Mechanism Block Retaining, φ3 x 35 mm	AA
251	MLEVF0897AFZZ	Lever, Record/Playback Switch	AE
252	MLIFP0003AFZZ	Damper, Cassette Holder	AD
253	MSPRC0021AFFN	Spring, Battery, (–) side	AA
254	MSPRC0140AFFN	Spring, Battery, (–) side	AB
255	MSPRP0089AGFW	Plate Spring, Cassette Holder	AB
256	MSPRT0003AGFW	Spring, Dial Cord Stringing	AA
257	MSPRT0210AFFW	Spring, Air Damper	AB
258	MSPRT0628AFFJ	Spring, Cassette Holder Opening	AA
259	NDRM-0066AFZZ	Drum, Dial Cord	AD
260	NPLYB0050AFZZ	Pulley, Dial Cord	AA
261	NPLYB0051AFZZ	Pulley, Dial Cord with Shaft	AA
262	NPLYC0102AFFW	Pulley, Dial Cord	AA
264	PCOVM1053AFSA	Cover, Mode Selector	AB
265	PCOVM1054AFSA	Cover, FM Muting/Recording Mode Selector/Mixing/ Loudness/Meter Selector Switches	AB
266	PCOVP7164AFZZ	Cover, Power Switch	AB
267	PCOVW1100AFZZ	Cover, Mains Socket	AA
268	PCOVZ7050AF00	Cover, Battery Compartment	AC
269	PCOVZ7057AF00	Cover, Battery Compartment	AA
270	PCUSG0084AF00	Cushion, Built-in Microphone	AA
271	PCUSS0128AF00	Cushion, LED Meter P.W. Board	AA
272	PCUSU0092AG00	Cushion, Battery Compartment Lid	AA
273	PCUSU0128AFZZ	Cushion, FM Coils	AA
274	PCUSU0229AFZZ	Cushion, Lever Switches	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
275	PFLT-0095AG00	Felt, Cassette Holder	AA
276	PFLT-0127AF00	Felt, Battery Compartment	AA
277	PFLT-0324AF00	Felt, Mode Selector/FM Muting/Recording Mode/ Mixing Switches	AA
278	PFLT-0332AF00	Felt, Record Level/Bass/ Treble/Volume Controls	AA
279	PFLT-0335AF00	Felt, Loudness/Meter Selector (Dial Light) Switches	AA
280	PFLT-0345AF00	Felt, Record level/Bass/Treble/ Volume Controls	AA
281	PFLT-0364AF00	Felt, Tape Speed/Echo Adjust	AA
282	PFLT-0370AF00	Felt, Function Selector Switches	AA
284	PGUMS0114AF00	Conductive Rubber, Record Level Controls	AA
286	PGUMS0124AF00	Rubber, Handle Cushion	AA
287	PGUMS0135AF00	Cushion, Rubber, Front Cabinet Bottom	AA
288	PGUMS0144AF00	Cushion, Rubber, Meter P.W. Board	AA
289	PRDAR0209AFZZ	Heat Sink	AG
⚠ 290	PSLDM3156AFZZ	Shield Plate	AD
291	PSPAI0140AFZZ	Spacer, Transparent Plate, Fiber	AA
292	PTPEC0005AG00	Ribbon, Battery Compartment	
293	QANTR0112AFZZ	FM/SW Telescopic Rod Aerial	AN
294	QHWS-3001AGFN	Lug Terminal	AA
295	QLUGP0111CEFW	Lug Terminal, P.W. Board (13 mm)	AA
296	QLUGP0150AFZZ	Lug Terminal, P.W. Board	AA
297	QLUGP9053AFFW	Lug Terminal, P.W. Board (20 mm)	AA
298	QTANB9102AFFN	Battery Terminal, (+) side	AC
299	QTANB9103AFFN	Battery Terminal, (+) side	AC
300	RMICC0071AFZZ	Built-in Microphone	AF
301	RREVA0006AFZZ	Echo Unit	AQ
302	TLABZ0130AFZZ	Mirror, Cassette Compartment	AA
303	NSFTD0166AFFW	Shaft, Dial	AE
305	QFSHD1001AGZZ	Holder Fuse	AA
306	QLUGP0105AGZZ	Lug Terminal	AA
⚠ 307	HINDP0271AFSA	Indication Metal, Model Spec.	AC
308	LHLDW1052AFZZ	Band, Wire (94 mm)	AA
309	PGIDI0002AFZZ	Guide, LED	AA
310	PSHEZ0098AFZZ	Shield Sheet	AC
⚠ 311	PSLDC3120AFZZ	Shield Plate	AE
312	TLABH0098AFZZ	Label, Aerial	AA
⚠ F701	QFS-C202CAGNI	Fuse, T2.0A	AE
J101 ~ J106	QJAKZ0109AFZZ	Socket Plate Assembly, Ext. Mic/Phono/GND/ Remote control	AL
J401	QJAKA0006AFZZ	Socket, Mixing Microphone	AC
J603	QJAKJ0052AFZZ	Socket, Headphones	AG
PG1	QCNCM440JAFZZ	Plug, 9pin	AC
PG401	QCNCM416EAFZZ	Plug, 5pin	AC
PG402	QCNCM445CAFZZ	Plug, 3pin	AG
PG403	QCNCM415DAFZZ	Plug, 4pin	AB
PG502	QCNCM175FAFZZ	Plug, 6pin	AC
PG601	QCNCM437DAFZZ	Plug, 4pin	AB
PG751	QCNCM396NAFZZ	Plug, 13pin	AD
PG752	QCNCM281EAFZZ	Plug, 5pin (Socket, Housing Only)	AB
PL601	RLMPM0089AFZZ	Lamp, Dial Illumination	AE
SO1	QCNCW329JAFZZ	Socket, 9pin (Housing Only)	AB
SO101	QSOCD2554AFZZ	Socket, Record/Playback	AF
SO103/ SO104	QSOCD2268AFZZ	Socket, Ext. Speaker	AE
SO401	QCNCW321EAFZZ	Socket, 5pin (Housing Only)	AA
SO402	QCNCW327CAFZZ	Socket, 3pin (Housing Only)	AA
SO403	————	Socket, 4pin (Part of 301)	
SO502	QCNCW146FAFZZ	Socket, 6pin (Housing Only)	AB
SO601	QCNCW320DAFZZ	Socket, 4pin (Housing Only)	AA
SO751	————	Socket, 13pin (Part of SW751)	
SO752	QCNCW177EAFZZ	Socket, 5pin (Housing Only)	AB
⚠ SO901/ J901	QSOCZ2469AFZZ	Socket, AC Input with DC Power Input	AG
SP1, SP2	VSP0018PB068A	Speaker,Woofer	AX
SP3, SP4	VSP0050TB268A	Speaker, Squawker	AM
SP5, SP6	VSP00HNTX16ZC	Speaker, Tweeter	AH
SW101	QSW-P9122AFZZ	Switch, Function Selector	AW
SW102	QSW-S0214AFZZ	Switch, Record/Playback	AL
SW103	QSW-P0172AFZZ	Switch, Editing	AF
SW104	QSW-B0087AFZZ	Switch, Mixing	AF
SW105	QSW-B0095AFZZ	Switch, Recording Mode Selector	AF
SW106	QSW-B0087AFZZ	Switch, FM Muting	AF
SW107	QSW-B0076AFZZ	Switch, Mode Selector	AF
SW108	QSW-B0086AFZZ	Switch, Loudness	AF
SW109	QSW-B0091AFZZ	Switch, Meter Selector/ Dial Light	AF
SW201	QSW-B9085AFZZ	Switch, Tape Selector	AH
SW202	QSW-B0128AFZZ	Switch, SNRS	AF
SW301	QSW-S0267AFZZ	Switch, Beat Cancel	AD
SW501	QSW-F0044AGZZ	Switch, Motor (Main)	AD
SW502	QSW-F0116AFZZ	Switch, APLD (REV)	AD
SW503	QSW-F0116AFZZ	Switch, APLD (FWD)	AD
SW504	QSW-M0064AFZZ	Switch, Muting	AG
⚠ SW701	QSOCE0551AFZZ	Switch, AC Supply Voltage Selector	AG
SW702	————	Switch, Power (Part of R139/R140)	
SW751	QSW-Z0087AFZZ	APLD Switch Ass'y	BC
TB1	QJAKF0052AFZZ	Terminals, EXT. FM Aerial	AF
⚠	QACCK0050AFZZ	Mains Supply Cord	AL
	QCNTZ0072AFZZ	Tip (for PG752)	AA
	QCNW-0441AFZZ	Connecting Wire, 4pin	AC
	QCNW-0442AFZZ	Connecting Wire, 7pin	AB
	QCNW-0483AFZZ	Connecting Wire, 5pin	AC
	QCNW-0485AFZZ	Connecting Wire, 8pin	AC
	QCNW-0488AFZZ	DIN Cord	AQ
	QTIPF0001CEYW	Tip (for SW504)	AA
	QTIPZ0084AFZZ	Tip (for SO1, SO402 and SO601)	AA
	QTIPZ0058AFZZ	Tip (for SO502)	AA
	QTIPZ0062AFZZ	Tip (for SO403)	AA
	QTIPZ0072AFZZ	Tip (for SO752, SO1, SO401 and SO402)	AA
	SPAKA0672AFZZ	Packing Add. (Left)	AG
	SPAKA0673AFZZ	Packing Add. (Right)	AG
	SPAKC1674AFZZ	Individual Carton	AQ
	SSAKH0024AGZZ	Polyethylene Bag, Operation Manual	AA
	SSAKH0116AFZZ	Polyethylene Bag	AC
	TCAUA0178AFZZ	Caution Label, Arabia	AA
	TGANG1054AFZZ	Guaranty Card (SEEG)	AA
	TINSZ0270AFZZ	Operation Manual (EXMAA)	AY
	TINSZ0273AFZZ	Operation Manual (4-Language)	AN
	TMAPC0749AFZZ	Schematic Diagram	

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
	PWB ASSEMBLY (Not Replacement Item)		
	DUNTJ0029AF07 (Combined Assembly)	APLD Switch Motor	—
	DUNTK0061AF06	Echo	
	DUNTK0075AF02 (Combined Assembly)	Headphone Switch Volume	
	DUNTL0135AF02	Main	
	DUNTM0059AF04	Audio Power	
	DUNTZ0409AF02	Tape Selector, SNRS	
	DUNTZ0411AF02	Indicator	
	DUNTZ0413AF03	LED Meter	
	DUNTZ0443AF01	Jack	

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